LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

RECEIPT

DATE: February 16, 2001

RECEIPT OF: 1) Reports on Striped Mullet, Black Drum, Sheepshead and Southern Flounder.

SENATE PRESIDENT (State Capitol/Senate Sub-Basement)

RECEIVED BY: _____

FOR SENATOR JOHN HAINKEL, SENATE PRESIDENT

HOUSE SPEAKER (State Capitol/1st Floor)

RECEIVED BY: _____

FOR REPRESENTATIVE CHARLES DeWITT, HOUSE SPEAKER

SENATE NATURAL RESOURCES COMMITTEE (State Capitol/Senate Sub-Basement)

RECEIVED BY: _____

FOR SENATOR CRAIG ROMERO, CHAIRMAN, SENATE NATURAL RESOURCES COMMITTEE

HOUSE NATURAL RESOURCES COMMITTEE (State Capitol/10th Floor)

RECEIVED BY: _____

FOR REPRESENTATIVE WILFRED PIERRE, CHAIRMAN, HOUSE NATURAL RESOURCES COMMITTEE

State of Louisiana

James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

February 9, 2001

Honorable John J. Hainkel, Jr.
Senate President
Post Office Box 94183
Baton Rouge, LA 70804

Honorable Craig Romero, Chairman
Senate Committee on Natural Resources
Post Office Box 94183
Baton Rouge, LA 70804

Honorable Charles DeWitt
Speaker of the House
Post Office Box 94062
Baton Rouge, LA 70804-9062

Honorable Wilfred Pierre, Chairman
House Committee on Natural Resources
Post Office Box 94062
Baton Rouge, LA 70804-9062

Gentlemen:

In compliance with R.S. 56:325.4(D)1 and R.S. 56:333(G)1, enclosed are the annual reports on striped mullet, black drum, sheepshead and southern flounder which include stock assessments, bioprofiles and spawning potential ratios. Also included are comments received from peer review. These reports were adopted by the Louisiana Wildlife and Fisheries Commission at its February 1, 2001 meeting.

Sincerely,

James H. Jenkins, Jr.
Secretary

/rp

Enclosures

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

MINUTES

FEBRUARY 1, 2001

DR. H. JERRY STONE
CHAIRMAN

BATON ROUGE, LOUISIANA

The following constitute minutes of the Commission Meeting
and are not a verbatim transcript of the proceedings.
Tapes of the meetings are kept at the
Louisiana Department of Wildlife and Fisheries
2000 Quail Drive
Baton Rouge, Louisiana 70808
For more information, call (225) 765-2806

AGENDA
LOUISIANA WILDLIFE AND FISHERIES COMMISSION
BATON ROUGE, LOUISIANA
FEBRUARY 1, 2001

MINUTES OF THE MEETING

OF

LOUISIANA WILDLIFE AND FISHERIES COMMISSION

Thursday, February 1, 2001

Chairman H. Jerry Stone presiding.

Bill Busbice
Tom Gattle
Tom Kelly

Secretary James H. Jenkins, Jr. was also present.

Commissioners Norman McCall and Terry Denmon were absent from the meeting.

Chairman Stone called for a motion for approval of the **January 4, 2001 Commission Minutes**. A motion for approval was made by Commissioner Gattle and seconded by Commissioner Kelly. The motion passed with no opposition.

Presentation of Shikar Safari Club International Officer of the Year Award began with Col. Winton Vidrine stating he was there to recognize the agent of the year. Shikar Safari is a hunting organization with worldwide membership and strongly supports conservation law enforcement. Each year this Club recognizes a wildlife officer from each state. This award is given to an agent for his commitment to the protection of wildlife. Col. Vidrine then explained how the Agent of the Year was chosen. The Region Captains and Field Supervisors nominate one candidate and this information is forwarded to the Baton Rouge Headquarters. The Agent this year is from Region IX and was nominated because of his public outreach, giving extra effort to assignments, having a professional attitude to fellow employees, being an excellent team member, ranking in the top three in arrest records, and leading the Region in public assistance. Agent Ross Mire works at Atchafalaya Delta and is an excellent officer. He is married, has three children and lives in Charenton. Col. Vidrine then presented Agent Mire a plaque for his outstanding work. Chairman Stone congratulated Agent Mire.

The **Monthly Law Enforcement Report for January** was given by Major Keith LaCaze. The following numbers of citations and warnings were issued during the month of January.

Region I - Minden - 79 citations and 13 warnings.

Region II - Monroe - 62 citations and 17 warnings.

Region III - Alexandria - 122 citations and 9 warnings.

Region IV - Ferriday - 131 citations and 3 warnings.

Region V - Lake Charles - 100 citations and 7 warnings.

Region VI - Opelousas - 161 citations and 16 warnings.

Region VII - Baton Rouge - 51 citations and 5 warnings.

Region VIII - New Orleans - 117 citations and 18 warnings.

Region IX - Thibodaux - 127 citations and 19 warnings.

Oyster Strike Force - 15 citations.

Statewide Strike Force - 22 citations.

Seafood Investigation Unit - 12 citations.

SWEP - 6 citations.

Refuge Patrol - 14 citations and 2 warnings.

The grand total of citations issued statewide for the month of January was 950. Also there were 107 warning citations issued for the month.

The aviation report for January 2001 showed enforcement pilots flew three airplanes a total of 47.6 hours for enforcement and 34.9 hours for other divisions. There were 10 citations issued.

Commissioner Gattle asked what was a citation for "other than Wildlife and Fisheries"? Major LaCaze stated it could have been a DWI charge or some type of vandalism or traffic charge. Then Commissioner Gattle asked about the confiscation of 77 shark dorsal fins. Chairman Stone asked how many cases would the 10 citations

involve from the Aviation Section? Major LaCaze stated it was probably six separate individuals. Commissioner Busbice asked if a personnel change occurred in Region II? Major LaCaze stated Captain Brad Smith retired effective January 1, and currently Sergeant Johnny Farrington was detailed into that position.

Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin (St. Martin Parish) was handled by Mr. Gary Lester. He began stating a local doctor from Baton Rouge was interested in bird watching and concerned with rookeries and the take of birds for their feathers. This doctor became the very first person in charge of the Commission in Louisiana. A video of the Lake Martin area was shown. Then Mr. Lester showed slides of the rookery and some of the species that are in this area. These species include the cattle egret which Louisiana has 20 percent of this population; great blue heron in which one-third of the population resides here in Louisiana; three-fourths of the United States little blue heron population resides in this State; 44 percent of the white ibis population; great egrets - almost 60 percent; and the roseate spoonbill - 22 percent nest in Louisiana. Louisiana has a number of rookeries that are very large, such as the one on Grassy Lake WMA which has at least 10,000 nests. The Lake Martin rookery is southeast of Lafayette. The problem in the area is the threat of the rookery by boaters. People going into the rookery during the nesting season disrupts the breeding and could lead to accidental crushing of the eggs and abandonment of the nests. If these problems continue, the rookery will move to a different location. Mr. Lester added that the rookery can be seen from a levee around the lake and does not require a boat. The Department is working with The Nature Conservancy, the primary owner of the rookery, to develop an agreement to make this a Natural Areas Registry site. The primary reason for action on a Declaration of Emergency was because nesting begins this month. A Notice of Intent will continue this closure on an annual basis. The closure, effective from February 15 through July 31 of each year, will be for motorized and non-motorized boats.

Chairman Stone asked what would be the impact from this action on fishermen, crawfishermen and hunters that access this area. Mr. Lester stated no one could go into this area by boat. Chairman Stone then asked if this property had public access up until now? Mr. Lester answered no. Ms. Cindy Brown, The Nature Conservancy, stated the closure dates do not interfere with hunting seasons. Fishermen do not go deep into this area because of the water

quality and lake depths. Ms. Brown added that there are no crawfishermen in that area.

Ms. Theresa Prevot, Chairman of the Lake Martin Advisory Council, stated they have been trying for 10 years to balance user usage at the lake and, at the same time, protect this valuable resource. She added that they will support any action to protect the rookery before it is too late.

Mr. Dickie Braud, bed and breakfast owners from Breaux Bridge, stated he and his wife depend on tourism in this area. The interest in Lake Martin has grown due to The Nature Conservancy and the influx of the birds. He has personally escorted TV personalities along the levee of Lake Martin to view the rookery. He hoped the Commission would add its part in helping to keep the area preserved.

Chairman Stone asked how many tourist boats work in the area and were they upset about this proposed action? Mr. Lester stated there are about 4 or 5 boats in the area and that he does not know the operators opinion about this action. But he added that there are birds nesting on the northern end of the Lake the tour boats could see. Mr. Don Puckett stated the Commission can approve both the Declaration of Emergency and Notice of Intent with one motion. Commissioner Gattle asked about the time frame on the Notice of Intent. He then made a motion to approve the Declaration of Emergency for both motorized and non-motorized boats and this to include the Notice of Intent. Commissioner Kelly seconded the motion and it passed with no opposition.

(The full text of the Declaration of Emergency and Notice of Intent are made a part of the record.)

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of the Administrative Procedure Act, the Wildlife and Fisheries Commission and the Department of Wildlife and Fisheries does hereby close a portion of Lake Martin, St. Martin Parish, to all boating traffic, both motorized and non-motorized.

The closed zone encompasses one of the largest and most significant bird rookeries in not only the state, but also the U.S.; and is both a natural treasure, as well as a significant eco-tourism attraction and economic asset to the local area and the state as a whole. Continued boating traffic through the rookery is extremely disruptive to the rookery and could even lead to its relocation or demise, which would pose an imminent peril to this natural and economic asset, and to those citizens who value it. Therefore this closure is necessary on an emergency basis, particularly in light of the fact that the nesting birds will begin returning to the rookery during the month of February.

This Declaration of Emergency will become effective on February 15, 2001 and shall remain in effect for the maximum period allowed under the Administrative Procedure Act or until adoption of the final rule.

Title 76

WILDLIFE AND FISHERIES

Part III. State Game and Fish Preserves and Sanctuaries

Chapter 3. Particular Game and Fish Preserves and Commissions

§333. St. Martin-Lafayette Fish and Game Preserve

That portion of the St. Martin-Lafayette Fish and Game Preserve, particularly the following described portion of Lake Martin, St. Martin Parish is hereby closed to all boating traffic, both motorized and non-motorized, said closure to remain in effect each year from February 15 through July 31 inclusive. The closed zone is described as follows:

All that certain property containing 131.94 acres more or less located in Section 31, Township 9 South, Range 6 East and Section 6, Township 10 South, Range 6 East, St. Martin Parish, Louisiana described as follows: Beginning at a point on the lake's edge located N 1 degree 59 minutes E a distance of 330 ft from a 4" X 4" concrete post, the post having State Plane Coordinates Louisiana South of X=1819303.09 ft, Y=561651.02 ft; thence N 1 degree 59 minutes E as distance of 1100 ft; thence S 88 degrees 1 minute E a distance of 2320 ft; thence S 36 degrees 54 minutes 58 seconds E a distance of 500 ft; thence S 1 degree 59 minutes W a distance of 2350 ft; thence N 88 degrees 1 minute W a distance of 660 ft;

thence S 1 degree 59 minutes W a distance of 1320 ft; thence N 88 degrees 1 minute W a distance of 660 ft; thence N 1 degree 59 minutes E a distance of 2970 ft; thence N 88 degrees 1 minute W a distance of 1320 ft to the point of beginning.

AUTHORITY NOTE: Promulgated in accordance with R.S. 36:610C and R.S. 56:1861 et seq.

HISTORICAL NOTE: Promulgated by Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 27: .

Dr. H. Jerry Stone
Chairman
James H. Jenkins, Jr.
Secretary

NOTICE OF INTENT

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

The Wildlife and Fisheries Commission and Department of Wildlife and Fisheries does hereby give its notice of intent to establish a rule for Lake Martin, St. Martin Parish.

Title 76

WILDLIFE AND FISHERIES

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AUTHORITY NOTE: Promulgated in accordance with R.S. 36:610C and R.S. 56:1861 et seq.

HISTORICAL NOTE: Promulgated by Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 27: .

The Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies of government.

Interested persons may submit comments relative to the proposed Rule to: Gary Lester, Natural Heritage Section, Department of Wildlife and Fisheries, Box 98000, Baton Rouge, LA 70898-9000, prior to Thursday, April 5, 2001.

In accordance with Act#1183 of 1999, the Department of Wildlife and Fisheries/Wildlife and Fisheries Commission hereby issues its Family Impact Statement in connection with the preceding Notice of Intent: This Notice of Intent will have no impact on the six criteria set out at R.S. 49:972(B).

Dr. H. Jerry Stone
Chairman
James H. Jenkins, Jr.
Secretary

Consideration of Offshore Shrimp Closure began with Mr. Martin Bourgeois giving a slide overview of the past shrimp season. The year 2000 was one of the most productive seasons on record. From a 1996 study, the total economic effect generated by shrimp and the

shellfish industry was estimated at $1.9 billion and this impact generated $60 million and $14 million in state sales tax and income tax revenue respectively. Approximately 22,000 jobs were directly and indirectly related to the shrimp industry. During the 2000 license year, about 57,000 resident, non-resident and alien commercial fishermen, vessel and shrimp gear licenses were sold which generated $2.6 million to the Conservation Fund. The brown shrimp, white shrimp, pink shrimp and the seabob represent 99.9 percent of shrimp landed in Louisiana. He showed slides of the three shrimp management zones utilized since the early 1970's and the action taken during 2000 in managing the shrimp seasons. Next, a chart showing the landings for all shrimp seasons was shown; and, for the year 2000, landings totaled 91.9 million pounds. Louisiana accounted for 53 percent of all shrimp landed in the Gulf of Mexico for the year 2000. A chart for Louisiana's annual commercial brown shrimp landings was shown next. White shrimp landings for the year 2000, not including December, measured 44.4 million pounds which beats the all time record harvested in 1986. The last chart shown was the 2000 commercial shrimp landings by parish. Terrebonne Parish accounts for the largest majority of both brown and white shrimp landed in Louisiana.

Mr. Bourgeois then asked the Commission to consider closing a portion of the offshore territorial waters. The recommendation would become effective February 5, 2001 and extend from the eastern shore of Freshwater Bayou to the U.S. Coast Guard Navigational Light in Terrebonne Parish. Overwintering white shrimp in these waters do not average 100 count per pound. Also it was recommended that the closure remain in effect until the opening of the inshore spring shrimp season in Zone 2. But it was recommended that those waters from the Atchafalaya River Ship Channel to the U.S. Coast Guard Navigational Light reopen on April 16, 2001. Also, Secretarial authority was requested to open or close seasons as needed. Chairman Stone asked Mr. Bourgeois to read the Therefore Be It Resolved portion of the Resolution. Commissioner Kelly made a motion accepting the Resolution and it was seconded by Commissioner Gattle. The motion passed with no opposition.

(The full text of the Resolution and Declaration of Emergency are made a part of the record.)

RESOLUTION

2001 Offshore Shrimp Season Closure

adopted by the
Louisiana Wildlife and Fisheries Commission

February 1, 2001

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Louisiana Wildlife and Fisheries Commission, and

WHEREAS, R.S. 56:497 provides the Commission shall have the authority to set special seasons for all or part of the state waters, and

WHEREAS, R.S. 56:498 provides the minimum legal count on white shrimp is 100 (whole shrimp) count per pound, except during the time period from October fifteenth through the third Monday in December when there shall be no count, and

WHEREAS, in the State's Territorial Waters, water temperatures are below 20 degrees Centigrade and the growth rate of white shrimp is therefore slow, and

WHEREAS, current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in a portion of the State's Territorial Waters do not average 100 count minimum size and additional small white shrimp are expected to recruit to these waters, now

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W, at 6 a.m. on Monday, February 5, 2001.

BE IT FURTHER RESOLVED, that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy line to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude

29° 03' 10" N and longitude 90° 50' 27" W shall reopen to shrimping at 6 a.m. on Monday, April 16, 2001.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to open special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing the State's Territorial Waters is attached to and made a part of this resolution.

Dr. H. Jerry Stone, Chairman
Wildlife and Fisheries
Commission

James H. Jenkins, Jr., Secretary
Department of Wildlife and
Fisheries

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of R.S. 49:953(B) and R.S. 49:967 of the Administrative Procedure Act which allows the Wildlife and Fisheries Commission to use emergency procedures to set shrimp seasons, and R.S. 56:497 which provides that the Wildlife and Fisheries Commission shall have the authority to open or close the State's offshore waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W. This closure

is effective at 6 a.m., Monday, February 5, 2001. The Commission also hereby orders that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy Line, shall reopen to shrimping at 6 a.m. on Monday, April 16, 2001.

R.S. 56:498 provides that the minimum legal count on white shrimp is 100 (whole shrimp) count per pound after the third Monday in December. Current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in this portion of the State's outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters. This action is being taken to protect these small white shrimp and allow them the opportunity to grow to a more valuable size.

The Wildlife and Fisheries Commission authorizes the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary; and hereby authorizes the Secretary of the Department of Wildlife and Fisheries to open special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

Dr. H. Jerry Stone
Chairman

Mr. Joey Shepard gave the **Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead.** He began stating in 1995, the Legislature passed Act 1316 and this Act requires the Commission to provide an annual peer reviewed report on the four listed species by March 1st. The reports include spawning potential, biological condition and profile. A spawning potential management target of 30 percent was set by this legislation. Mr. Shepard explained the spawning potential ratio (SPR) is the proportion of the stock with fishing compared to that of no fishing at all. The spawning potential can be measured in different ways depending on the information one has. Beginning with sheepshead, the landings for the last 5 or 6 years has not

changed much. Commercial landings has fluctuated in a downward position, whereas recreational landings fluctuated with high years and low years. Act 1316 prohibited the use of set gill nets, trammel nets in saltwater areas and restricts harvest to the use of strike nets from the third Monday in October until the following March 1st. Restricted species permits were required to harvest sheepshead. After 1997, the only legal commercial gear was limited to trawls, set lines and hook and line. The SPR with a natural mortality rate of 0.2 is from 54 to 71 percent. With a higher mortality rate of 0.3, the SPR would be between 72 and 93 percent.

The landings for black drum have gone down substantially since the mid to late 1980's. Since 1989, regulations have reduced the commercial harvest and to some extent the recreational harvest. The regulations included commercial quotas and size limits for both commercial and recreational fishermen. Act 1316 in 1995 impacted black drum the same way it did sheepshead. The SPR for black drum with a natural mortality rate of 0.1 is around 42 percent. But with a natural mortality rate of 0.2, the SPR should be around 67 percent. Commissioner Gattle asked what was the SPR last year and did it remain stable? Mr. Shepard answered yes, it was about the same.

The harvest of striped mullet was 99.5 percent from commercial fishermen, stated Mr. Shepard. Act 1316 regulated mullet the same way it did sheepshead and black drum. It also restricted the season to between the third Monday in October through the middle of January the next year. Night fishing and fishing on weekends for mullet was outlawed and the strike net was the only legal gear to be used. Regulations changed in 1999 in which the Legislature allowed the use of hoop nets in freshwater areas, no night fishing, and mullet harvested in freshwater areas could not be possessed by commercial fishermen in saltwater areas. An estimated 18,000 pounds of mullet were harvested by hoop nets. The SPR using the natural mortality rate of 0.3 is between 31 and 34 percent. But if the natural mortality rate was 0.6, then the SPR would be between 62 and 68 percent.

The last species, southern flounder, had a substantial drop in harvest after Act 1316 was implemented. Mr. Shepard added that the recreational industry is the primary harvesters of this fish. In 1995, Act 1316 restricted the harvest of this species the same way it did sheepshead and black drum. In 1996, the recreational bag limit and possession limit of 10 fish was established, strike nets were outlawed, and other commercial harvests were limited to 10

fish. In 1997, the commercial and recreational bag limit was changed to allow the taking of 10 flounder each day. Also, shrimp vessels were allowed to have 100 pounds of flounder per shrimping trip. The regulations changed again in 1999 by removing the 100 pound commercial shrimp restriction if the harvest of flounder was caught as by-catch from shrimping. Using a natural mortality rate of 0.5, the SPR for flounder is between 28 and 30 percent. But using a natural mortality rate of 0.8, the SPR is between 51 and 54 percent.

Mr. Shepard then stated copies of the four profiles are available if requested. He did note that sheepshead was the only profile updated. Peer review comments were included in the packets. Mr. Shepard then asked that with the Commission's approval, Secretary Jenkins would submit the documents to the Legislature before March 1, 2001. Commissioner Gattle asked what has happened to the flounder numbers with the regulation allowing fishermen to keep this fish if caught as a by-catch? Mr. Shepard stated there should not be a real large increase in flounder production for the year 2000. Then Commissioner Gattle asked if there would be any change in the flounder SPR for the year 2000? Commissioner Busbice asked what Committee of the Legislature do these reports go to and is it very important that these reports be looked at by the Legislators each year? Mr. Shepard stated he did not know that it was necessary the reports be done every year. Commissioner Busbice asked what was the cost involved with these reports. Mr. John Roussel added no one has tried to figure a cost, but staff does the stock assessment work any way. Chairman Stone asked if a motion was required. Mr. Don Puckett stated, for these reports to be from both the Department and the Commission, he recommended an oral motion to adopt the reports as presented by the Department. Commissioner Gattle made a motion to adopt the reports as presented and it was seconded by Commissioner Kelly. The motion passed with no opposition.

Chairman Stone then asked for the **Division Report, Deer Program/Quality Deer Management**. Mr. Phil Bowman stated this was continuing in a series of division reports that the Office of Wildlife was involved with. He added he asked Mr. Dave Moreland to focus on the deer topic, quality deer management, that several hunting clubs and hunters are discussing. Mr. Moreland stated the deer season ended the day before the Meeting and overall it appeared to be a good season. He felt there would be an increase in recognition deer killed this year. A current list of big game records was included in the packets. Staff was meeting to discuss

season dates for next year and Mr. Moreland did not expect any significant changes except for calendar adjustments. A breeding study has begun in Area 6 and last year's peak breeding was from mid-January to the end of January and into February. The deer program involves management of deer herds on public and private lands. From a handout, Table 1 showed physical data comparisons from male deer on WMAs to those on DMAP lands. The deer herds are very comparable or even better than those killed on private lands. Commissioner Gattle stated he knew of a hunter that killed a huge buck that weighed over 200 pounds around Bayou Macon WMA near one of his farms. Mr. Moreland continued stating quality deer management involves managing the herd through a selective harvest program which will allow the younger bucks to get into the older age classes. In a traditional deer management program, bucks are harvested across the board. Table 2 showed how DMAP cooperators are achieving an increase in the older age classes. Thirty-two percent of deer harvested on WMAs in 1991 were 6 month old male deer. In 1992, 47 percent of the male deer killed were 1-1/2 years old. But on DMAP in 1991, only 15 percent of the deer harvested were 6 months old. Over the years, the DMAP clubs has done a good job in reducing the number of young deer killed due to quality deer management. Quality deer management is not necessarily trophy deer management. At the March Meeting, representatives of the South Louisiana Chapter of the Quality Deer Management Association would present a request that they be designated a quality deer management area with mandatory antler restrictions. Mr. Moreland stated quality deer management has been discussed, but he does not like the idea from a statewide basis. Table 3 showed how different habitat types produced different quality deer. The older deer from agriculture associated bottomland hardwoods produce a much better deer. Mr. Moreland then showed several examples of deer harvested from the different habitat areas. Areas along the coast has low quality habitat and the deer will not be that large. Table 4 showed a big difference between spikes and forked antlered bucks 1-1/2 years of age with the different habitat areas. The Association that will make a request to the Commission will ask for a 6-point regulation during the bucks only season. During the doe days, any buck will be legal. Mr. Moreland stated there is strong support for quality deer management in this State. But he felt an area or parish basis would be the best approach. Mr. Moreland explained why quality deer management restriction would not work on all of the WMAs. Commissioner Gattle stated he would like to see quality management in certain areas of the State. He then asked if there was a doe restriction in Mississippi? Mr. Moreland stated some counties have certain doe days and others allow doe hunting every

day. Mr. Moreland stated the staff may request additional either sex hunting days in some parishes next year. Commissioner Busbice stated he agrees with a lot of Mr. Moreland's science and experiences. Mr. Moreland again stated quality deer management is being achieved already in the State through the DMAP program on a voluntary basis. Commissioner Busbice felt the Commission should be cautious in their approving quality deer management requests.

Chairman Stone asked Secretary Jenkins for an update on the Mississippi licensing fees. Secretary Jenkins stated staff went to a Legislative Oversight Hearing on the Commission's proposed rules and the Committee approved those rules. The next day Secretary Jenkins talked with Mississippi's Director and he stated they were looking at an $11 million deficit to be solved. Also, he added that the Mississippi Nonresident Hunting License would be between $375 and $395 and would apply to everyone and not just Louisiana. If Louisiana's Legislature approves the 1-day fishing license and then work out something with the mothership charterboat operations from the Gulf Coast, then all of the problems should go away. Secretary Jenkins explained how a decal system that would match smaller boats with a mothership would work and charging these fishermen a smaller nonresident license fee. Chairman Stone stated the charterboat tourists are not benefitting Louisiana. Secretary Jenkins added, from a conversation he had with reporters, that he was not concerned with the tourist impact since Louisiana gets only a license sale from the tourists. Commissioner Gattle asked if the fee would be across the board? Secretary Jenkins stated it would be for all states and citizens of Louisiana too. Commissioner Gattle then asked for an update on ratifying the proposed rules? Mrs. Janis Landry stated there was still a 7 day period before the expiration of the Oversight Hearing time frame. She asked that the Commission allow Secretary Jenkins to ratify the rules so they can be implemented by February 20, 2001. Hearing no objections, Mrs. Landry announced the proposed rules would become effective February 20, 2001.

The Commissioners agreed to hold the **June 2001 Meeting** on Thursday, June 7, 2001 beginning at 10:00 a.m. at the Baton Rouge Headquarters.

Commissioner Busbice asked Mr. Bennie Fontenot when his freshwater lake assessment meeting would be held? Mr. Fontenot stated it was around the 12th of February and it would be at the hatchery in Woodworth.

Chairman Stone then announced a new Commission member was appointed, Mr. Terry Denmon from Monroe and expected he would be at the next meeting.

Chairman Stone then asked if there were any **Public Comments** and none were heard.

There being no further business, Commissioner Kelly made a motion to **Adjourn** the meeting and it was seconded by Commissioner Busbice.

James H. Jenkins, Jr.
Secretary

JHJ:sch

Marianne,
Please review the attached.
Thanks,
Susan
sorry for delay 2/13/2001

INUTES OF THE MEETING

OF

ILDLIFE AND FISHERIES COMMISSION

rsday, February 1, 2001

e presiding.

Bill Busbice
Tom Gattle
Tom Kelly

Secretary James H. Jenkins, Jr. was also present.

Commissioners Norman McCall and Terry Denmon were absent from the meeting.

Chairman Stone called for a motion for approval of the **January 4, 2001 Commission Minutes**. A motion for approval was made by Commissioner Gattle and seconded by Commissioner Kelly. The motion passed with no opposition.

Presentation of Shikar Safari Club International Officer of the Year Award began with Col. Winton Vidrine stating he was there to recognize the agent of the year. Shikar Safari is a hunting organization with worldwide membership and strongly supports conservation law enforcement. Each year this Club recognizes a wildlife officer from each state. This award is given to an agent for his commitment to the protection of wildlife. Col. Vidrine then explained how the Agent of the Year was chosen. The Region Captains and Field Supervisors nominate one candidate and this information is forwarded to the Baton Rouge Headquarters. The Agent this year is from Region IX and was nominated because of his public outreach, giving extra effort to assignments, having a professional attitude to fellow employees, being an excellent team member, ranking in the top three in arrest records, and leading the Region in public assistance. Agent Ross Mire works at Atchafalaya Delta and is an excellent officer. He is married, has three children and lives in Charenton. Col. Vidrine then presented Agent Mire a plaque for his outstanding work. Chairman Stone congratulated Agent Mire.

The **Monthly Law Enforcement Report for January** was given by Major Keith LaCaze. The following numbers of citations and warnings were issued during the month of January.

Region I - Minden - 79 citations and 13 warnings.

Region II - Monroe - 62 citations and 17 warnings.

Region III - Alexandria - 122 citations and 9 warnings.

Region IV - Ferriday - 131 citations and 3 warnings.

Region V - Lake Charles - 100 citations and 7 warnings.

Region VI - Opelousas - 161 citations and 16 warnings.

Region VII - Baton Rouge - 51 citations and 5 warnings.

Region VIII - New Orleans - 117 citations and 18 warnings.

Region IX - Thibodaux - 127 citations and 19 warnings.

Oyster Strike Force - 15 citations.

Statewide Strike Force - 22 citations.

Seafood Investigation Unit - 12 citations.

SWEP - 6 citations.

Refuge Patrol - 14 citations and 2 warnings.

The grand total of citations issued statewide for the month of January was 950. Also there were 107 warning citations issued for the month.

The aviation report for January 2001 showed enforcement pilots flew three airplanes a total of 47.6 hours for enforcement and 34.9 hours for other divisions. There were 10 citations issued.

Commissioner Gattle asked what was a citation for "other than Wildlife and Fisheries"? Major LaCaze stated it could have been a DWI charge or some type of vandalism or traffic charge. Then Commissioner Gattle asked about the confiscation of 77 shark dorsal fins. Chairman Stone asked how many cases would the 10 citations

involve from the Aviation Section? Major LaCaze stated it was probably six separate individuals. Commissioner Busbice asked if a personnel change occurred in Region II? Major LaCaze stated Captain Brad Smith retired effective January 1, and currently Sergeant Johnny Farrington was detailed into that position.

Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin (St. Martin Parish) was handled by Mr. Gary Lester. He began stating a local doctor from Baton Rouge was interested in bird watching and concerned with rookeries and the take of birds for their feathers. This doctor became the very first person in charge of the Commission in Louisiana. A video of the Lake Martin area was shown. Then Mr. Lester showed slides of the rookery and some of the species that are in this area. These species include the cattle egret which Louisiana has 20 percent of this population; great blue heron in which one-third of the population resides here in Louisiana; three-fourths of the United States little blue heron population resides in this State; 44 percent of the white ibis population; great egrets - almost 60 percent; and the roseate spoonbill - 22 percent nest in Louisiana. Louisiana has a number of rookeries that are very large, such as the one on Grassy Lake WMA which has at least 10,000 nests. The Lake Martin rookery is southeast of Lafayette. The problem in the area is the threat of the rookery by boaters. People going into the rookery during the nesting season disrupts the breeding and could lead to accidental crushing of the eggs and abandonment of the nests. If these problems continue, the rookery will move to a different location. Mr. Lester added that the rookery can be seen from a levee around the lake and does not require a boat. The Department is working with The Nature Conservancy, the primary owner of the rookery, to develop an agreement to make this a Natural Areas Registry site. The primary reason for action on a Declaration of Emergency was because nesting begins this month. A Notice of Intent will continue this closure on an annual basis. The closure, effective from February 15 through July 31 of each year, will be for motorized and non-motorized boats.

Chairman Stone asked what would be the impact from this action on fishermen, crawfishermen and hunters that access this area. Mr. Lester stated no one could go into this area by boat. Chairman Stone then asked if this property had public access up until now? Mr. Lester answered no. Ms. Cindy Brown, The Nature Conservancy, stated the closure dates do not interfere with hunting seasons. Fishermen do not go deep into this area because of the water

quality and lake depths. Ms. Brown added that there are no crawfishermen in that area.

Ms. Theresa Prevot, Chairman of the Lake Martin Advisory Council, stated they have been trying for 10 years to balance user usage at the lake and, at the same time, protect this valuable resource. She added that they will support any action to protect the rookery before it is too late.

Mr. Dickie Braud, bed and breakfast owners from Breaux Bridge, stated he and his wife depend on tourism in this area. The interest in Lake Martin has grown due to The Nature Conservancy and the influx of the birds. He has personally escorted TV personalities along the levee of Lake Martin to view the rookery. He hoped the Commission would add its part in helping to keep the area preserved.

Chairman Stone asked how many tourist boats work in the area and were they upset about this proposed action? Mr. Lester stated there are about 4 or 5 boats in the area and that he does not know the operators opinion about this action. But he added that there are birds nesting on the northern end of the Lake the tour boats could see. Mr. Don Puckett stated the Commission can approve both the Declaration of Emergency and Notice of Intent with one motion. Commissioner Gattle asked about the time frame on the Notice of Intent. He then made a motion to approve the Declaration of Emergency for both motorized and non-motorized boats and this to include the Notice of Intent. Commissioner Kelly seconded the motion and it passed with no opposition.

(The full text of the Declaration of Emergency and Notice of Intent are made a part of the record.)

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of the Administrative Procedure Act, the Wildlife and Fisheries Commission and the Department of Wildlife and Fisheries does hereby close a portion of Lake Martin, St. Martin Parish, to all boating traffic, both motorized and non-motorized.

The closed zone encompasses one of the largest and most significant bird rookeries in not only the state, but also the U.S.; and is both a natural treasure, as well as a significant eco-tourism attraction and economic asset to the local area and the state as a whole. Continued boating traffic through the rookery is extremely disruptive to the rookery and could even lead to its relocation or demise, which would pose an imminent peril to this natural and economic asset, and to those citizens who value it. Therefore this closure is necessary on an emergency basis, particularly in light of the fact that the nesting birds will begin returning to the rookery during the month of February.

This Declaration of Emergency will become effective on February 15, 2001 and shall remain in effect for the maximum period allowed under the Administrative Procedure Act or until adoption of the final rule.

Title 76

WILDLIFE AND FISHERIES

Part III. State Game and Fish Preserves and Sanctuaries

Chapter 3. Particular Game and Fish Preserves and Commissions

§333. St. Martin-Lafayette Fish and Game Preserve

That portion of the St. Martin-Lafayette Fish and Game Preserve, particularly the following described portion of Lake Martin, St. Martin Parish is hereby closed to all boating traffic, both motorized and non-motorized, said closure to remain in effect each year from February 15 through July 31 inclusive. The closed zone is described as follows:

All that certain property containing 131.94 acres more or less located in Section 31, Township 9 South, Range 6 East and Section 6, Township 10 South, Range 6 East, St. Martin Parish, Louisiana described as follows: Beginning at a point on the lake's edge located N 1 degree 59 minutes E a distance of 330 ft from a 4" X 4" concrete post, the post having State Plane Coordinates Louisiana South of X=1819303.09 ft, Y=561651.02 ft; thence N 1 degree 59 minutes E as distance of 1100 ft; thence S 88 degrees 1 minute E a distance of 2320 ft; thence S 36 degrees 54 minutes 58 seconds E a distance of 500 ft; thence S 1 degree 59 minutes W a distance of 2350 ft; thence N 88 degrees 1 minute W a distance of 660 ft;

thence S 1 degree 59 minutes W a distance of 1320 ft; thence N 88 degrees 1 minute W a distance of 660 ft; thence N 1 degree 59 minutes E a distance of 2970 ft; thence N 88 degrees 1 minute W a distance of 1320 ft to the point of beginning.

AUTHORITY NOTE: Promulgated in accordance with R.S. 36:610C and R.S. 56:1861 et seq.

HISTORICAL NOTE: Promulgated by Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 27:

Dr. H. Jerry Stone
Chairman
James H. Jenkins, Jr.
Secretary

NOTICE OF INTENT

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

The Wildlife and Fisheries Commission and Department of Wildlife and Fisheries does hereby give its notice of intent to establish a rule for Lake Martin, St. Martin Parish.

Title 76

WILDLIFE AND FISHERIES

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AUTHORITY NOTE: Promulgated in accordance with R.S. 36:610C and R.S. 56:1861 et seq.

HISTORICAL NOTE: Promulgated by Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 27: .

The Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies of government.

Interested persons may submit comments relative to the proposed Rule to: Gary Lester, Natural Heritage Section, Department of Wildlife and Fisheries, Box 98000, Baton Rouge, LA 70898-9000, prior to Thursday, April 5, 2001.

In accordance with Act#1183 of 1999, the Department of Wildlife and Fisheries/Wildlife and Fisheries Commission hereby issues its Family Impact Statement in connection with the preceding Notice of Intent: This Notice of Intent will have no impact on the six criteria set out at R.S. 49:972(B).

Dr. H. Jerry Stone
Chairman
James H. Jenkins, Jr.
Secretary

Consideration of Offshore Shrimp Closure began with Mr. Martin Bourgeois giving a slide overview of the past shrimp season. The year 2000 was one of the most productive seasons on record. From a 1996 study, the total economic effect generated by shrimp and the

shellfish industry was estimated at $1.9 billion and this impact generated $60 million and $14 million in state sales tax and income tax revenue respectively. Approximately 22,000 jobs were directly and indirectly related to the shrimp industry. During the 2000 license year, about 57,000 resident, non-resident and alien commercial fishermen, vessel and shrimp gear licenses were sold which generated $2.6 million to the Conservation Fund. The brown shrimp, white shrimp, pink shrimp and the seabob represent 99.9 percent of shrimp landed in Louisiana. He showed slides of the three shrimp management zones utilized since the early 1970's and the action taken during 2000 in managing the shrimp seasons. Next, a chart showing the landings for all shrimp seasons was shown; and, for the year 2000, landings totaled 91.9 million pounds. Louisiana accounted for 53 percent of all shrimp landed in the Gulf of Mexico for the year 2000. A chart for Louisiana's annual commercial brown shrimp landings was shown next. White shrimp landings for the year 2000, not including December, measured 44.4 million pounds which beats the all time record harvested in 1986. The last chart shown was the 2000 commercial shrimp landings by parish. Terrebonne Parish accounts for the largest majority of both brown and white shrimp landed in Louisiana.

Mr. Bourgeois then asked the Commission to consider closing a portion of the offshore territorial waters. The recommendation would become effective February 5, 2001 and extend from the eastern shore of Freshwater Bayou to the U.S. Coast Guard Navigational Light in Terrebonne Parish. Overwintering white shrimp in these waters do not average 100 count per pound. Also it was recommended that the closure remain in effect until the opening of the inshore spring shrimp season in Zone 2. But it was recommended that those waters from the Atchafalaya River Ship Channel to the U.S. Coast Guard Navigational Light reopen on April 16, 2001. Also, Secretarial authority was requested to open or close seasons as needed. Chairman Stone asked Mr. Bourgeois to read the Therefore Be It Resolved portion of the Resolution. Commissioner Kelly made a motion accepting the Resolution and it was seconded by Commissioner Gattle. The motion passed with no opposition.

(The full text of the Resolution and Declaration of Emergency are made a part of the record.)

RESOLUTION

2001 Offshore Shrimp Season Closure

adopted by the
Louisiana Wildlife and Fisheries Commission

February 1, 2001

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Louisiana Wildlife and Fisheries Commission, and

WHEREAS, R.S. 56:497 provides the Commission shall have the authority to set special seasons for all or part of the state waters, and

WHEREAS, R.S. 56:498 provides the minimum legal count on white shrimp is 100 (whole shrimp) count per pound, except during the time period from October fifteenth through the third Monday in December when there shall be no count, and

WHEREAS, in the State's Territorial Waters, water temperatures are below 20 degrees Centigrade and the growth rate of white shrimp is therefore slow, and

WHEREAS, current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in a portion of the State's Territorial Waters do not average 100 count minimum size and additional small white shrimp are expected to recruit to these waters, now

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W, at 6 a.m. on Monday, February 5, 2001.

BE IT FURTHER RESOLVED, that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy line to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude

29° 03' 10" N and longitude 90° 50' 27" W shall reopen to shrimping at 6 a.m. on Monday, April 16, 2001.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to open special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing the State's Territorial Waters is attached to and made a part of this resolution.

Dr. H. Jerry Stone, Chairman
Wildlife and Fisheries Commission

James H. Jenkins, Jr., Secretary
Department of Wildlife and Fisheries

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of R.S. 49:953(B) and R.S. 49:967 of the Administrative Procedure Act which allows the Wildlife and Fisheries Commission to use emergency procedures to set shrimp seasons, and R.S. 56:497 which provides that the Wildlife and Fisheries Commission shall have the authority to open or close the State's offshore waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W. This closure

is effective at 6 a.m., Monday, February 5, 2001. The Commission also hereby orders that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy Line, shall reopen to shrimping at 6 a.m. on Monday, April 16, 2001.

R.S. 56:498 provides that the minimum legal count on white shrimp is 100 (whole shrimp) count per pound after the third Monday in December. Current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in this portion of the State's outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters. This action is being taken to protect these small white shrimp and allow them the opportunity to grow to a more valuable size.

The Wildlife and Fisheries Commission authorizes the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary; and hereby authorizes the Secretary of the Department of Wildlife and Fisheries to open special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

Dr. H. Jerry Stone
Chairman

Mr. Joey Shepard gave the **Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead.** He began stating in 1995, the Legislature passed Act 1316 and this Act requires the Commission to provide an annual peer reviewed report on the four listed species by March 1st. The reports include spawning potential, biological condition and profile. A spawning potential management target of 30 percent was set by this legislation. Mr. Shepard explained the spawning potential ratio (SPR) is the proportion of the stock with fishing compared to that of no fishing at all. The spawning potential can be measured in different ways depending on the information one has. Beginning with sheepshead, the landings for the last 5 or 6 years has not

changed much. Commercial landings has fluctuated in a downward position, whereas recreational landings fluctuated with high years and low years. Act 1316 prohibited the use of set gill nets, trammel nets in saltwater areas and restricts harvest to the use of strike nets from the third Monday in October until the following March 1st. Restricted species permits were required to harvest sheepshead. After 1997, the only legal commercial gear was limited to trawls, set lines and hook and line. The SPR with a natural mortality rate of 0.2 is from 54 to 71 percent. With a higher mortality rate of 0.3, the SPR would be between 72 and 93 percent.

The landings for black drum have gone down substantially since the mid to late 1980's. Since 1989, regulations have reduced the commercial harvest and to some extent the recreational harvest. The regulations included commercial quotas and size limits for both commercial and recreational fishermen. Act 1316 in 1995 impacted black drum the same way it did sheepshead. The SPR for black drum with a natural mortality rate of 0.1 is around 42 percent. But with a natural mortality rate of 0.2, the SPR should be around 67 percent. Commissioner Gattle asked what was the SPR last year and did it remain stable? Mr. Shepard answered yes, it was about the same.

The harvest of striped mullet was 99.5 percent from commercial fishermen, stated Mr. Shepard. Act 1316 regulated mullet the same way it did sheepshead and black drum. It also restricted the season to between the third Monday in October through the middle of January the next year. Night fishing and fishing on weekends for mullet was outlawed and the strike net was the only legal gear to be used. Regulations changed in 1999 in which the Legislature allowed the use of hoop nets in freshwater areas, no night fishing, and mullet harvested in freshwater areas could not be possessed by commercial fishermen in saltwater areas. An estimated 18,000 pounds of mullet were harvested by hoop nets. The SPR using the natural mortality rate of 0.3 is between 31 and 34 percent. But if the natural mortality rate was 0.6, then the SPR would be between 62 and 68 percent.

The last species, southern flounder, had a substantial drop in harvest after Act 1316 was implemented. Mr. Shepard added that the recreational industry is the primary harvesters of this fish. In 1995, Act 1316 restricted the harvest of this species the same way it did sheepshead and black drum. In 1996, the recreational bag limit and possession limit of 10 fish was established, strike nets were outlawed, and other commercial harvests were limited to 10

fish. In 1997, the commercial and recreational bag limit was changed to allow the taking of 10 flounder each day. Also, shrimp vessels were allowed to have 100 pounds of flounder per shrimping trip. The regulations changed again in 1999 by removing the 100 pound commercial shrimp restriction if the harvest of flounder was caught as by-catch from shrimping. Using a natural mortality rate of 0.5, the SPR for flounder is between 28 and 30 percent. But using a natural mortality rate of 0.8, the SPR is between 51 and 54 percent.

Mr. Shepard then stated copies of the four profiles are available if requested. He did note that sheepshead was the only profile updated. Peer review comments were included in the packets. Mr. Shepard then asked that with the Commission's approval, Secretary Jenkins would submit the documents to the Legislature before March 1, 2001. Commissioner Gattle asked what has happened to the flounder numbers with the regulation allowing fishermen to keep this fish if caught as a by-catch? Mr. Shepard stated there should not be a real large increase in flounder production for the year 2000. Then Commissioner Gattle asked if there would be any change in the flounder SPR for the year 2000? Commissioner Busbice asked what Committee of the Legislature do these reports go to and is it very important that these reports be looked at by the Legislators each year? Mr. Shepard stated he did not know that it was necessary the reports be done every year. Commissioner Busbice asked what was the cost involved with these reports. Mr. John Roussel added no one has tried to figure a cost, but staff does the stock assessment work any way. Chairman Stone asked if a motion was required. Mr. Don Puckett stated, for these reports to be from both the Department and the Commission, he recommended an oral motion to adopt the reports as presented by the Department. Commissioner Gattle made a motion to adopt the reports as presented and it was seconded by Commissioner Kelly. The motion passed with no opposition.

Chairman Stone then asked for the **Division Report, Deer Program/Quality Deer Management.** Mr. Phil Bowman stated this was continuing in a series of division reports that the Office of Wildlife was involved with. He added he asked Mr. Dave Moreland to focus on the deer topic, quality deer management, that several hunting clubs and hunters are discussing. Mr. Moreland stated the deer season ended the day before the Meeting and overall it appeared to be a good season. He felt there would be an increase in recognition deer killed this year. A current list of big game records was included in the packets. Staff was meeting to discuss

season dates for next year and Mr. Moreland did not expect any significant changes except for calendar adjustments. A breeding study has begun in Area 6 and last year's peak breeding was from mid-January to the end of January and into February. The deer program involves management of deer herds on public and private lands. From a handout, Table 1 showed physical data comparisons from male deer on WMAs to those on DMAP lands. The deer herds are very comparable or even better than those killed on private lands. Commissioner Gattle stated he knew of a hunter that killed a huge buck that weighed over 200 pounds around Bayou Macon WMA near one of his farms. Mr. Moreland continued stating quality deer management involves managing the herd through a selective harvest program which will allow the younger bucks to get into the older age classes. In a traditional deer management program, bucks are harvested across the board. Table 2 showed how DMAP cooperators are achieving an increase in the older age classes. Thirty-two percent of deer harvested on WMAs in 1991 were 6 month old male deer. In 1992, 47 percent of the male deer killed were 1-1/2 years old. But on DMAP in 1991, only 15 percent of the deer harvested were 6 months old. Over the years, the DMAP clubs has done a good job in reducing the number of young deer killed due to quality deer management. Quality deer management is not necessarily trophy deer management. At the March Meeting, representatives of the South Louisiana Chapter of the Quality Deer Management Association would present a request that they be designated a quality deer management area with mandatory antler restrictions. Mr. Moreland stated quality deer management has been discussed, but he does not like the idea from a statewide basis. Table 3 showed how different habitat types produced different quality deer. The older deer from agriculture associated bottomland hardwoods produce a much better deer. Mr. Moreland then showed several examples of deer harvested from the different habitat areas. Areas along the coast has low quality habitat and the deer will not be that large. Table 4 showed a big difference between spikes and forked antlered bucks 1-1/2 years of age with the different habitat areas. The Association that will make a request to the Commission will ask for a 6-point regulation during the bucks only season. During the doe days, any buck will be legal. Mr. Moreland stated there is strong support for quality deer management in this State. But he felt an area or parish basis would be the best approach. Mr. Moreland explained why quality deer management restriction would not work on all of the WMAs. Commissioner Gattle stated he would like to see quality management in certain areas of the State. He then asked if there was a doe restriction in Mississippi? Mr. Moreland stated some counties have certain doe days and others allow doe hunting every

day. Mr. Moreland stated the staff may request additional either sex hunting days in some parishes next year. Commissioner Busbice stated he agrees with a lot of Mr. Moreland's science and experiences. Mr. Moreland again stated quality deer management is being achieved already in the State through the DMAP program on a voluntary basis. Commissioner Busbice felt the Commission should be cautious in their approving quality deer management requests.

Chairman Stone asked Secretary Jenkins for an update on the Mississippi licensing fees. Secretary Jenkins stated staff went to a Legislative Oversight Hearing on the Commission's proposed rules and the Committee approved those rules. The next day Secretary Jenkins talked with Mississippi's Director and he stated they were looking at an $11 million deficit to be solved. Also, he added that the Mississippi Nonresident Hunting License would be between $375 and $395 and would apply to everyone and not just Louisiana. If Louisiana's Legislature approves the 1-day fishing license and then work out something with the mothership charterboat operations from the Gulf Coast, then all of the problems should go away. Secretary Jenkins explained how a decal system that would match smaller boats with a mothership would work and charging these fishermen a smaller nonresident license fee. Chairman Stone stated the charterboat tourists are not benefitting Louisiana. Secretary Jenkins added, from a conversation he had with reporters, that he was not concerned with the tourist impact since Louisiana gets only a license sale from the tourists. Commissioner Gattle asked if the fee would be across the board? Secretary Jenkins stated it would be for all states and citizens of Louisiana too. Commissioner Gattle then asked for an update on ratifying the proposed rules? Mrs. Janis Landry stated there was still a 7 day period before the expiration of the Oversight Hearing time frame. She asked that the Commission allow Secretary Jenkins to ratify the rules so they can be implemented by February 20, 2001. Hearing no objections, Mrs. Landry announced the proposed rules would become effective February 20, 2001.

The Commissioners agreed to hold the **June 2001 Meeting** on Thursday, June 7, 2001 beginning at 10:00 a.m. at the Baton Rouge Headquarters.

Commissioner Busbice asked Mr. Bennie Fontenot when his freshwater lake assessment meeting would be held? Mr. Fontenot stated it was around the 12th of February and it would be at the hatchery in Woodworth.

Chairman Stone then announced a new Commission member was appointed, Mr. Terry Denmon from Monroe and expected he would be at the next meeting.

Chairman Stone then asked if there were any **Public Comments** and none were heard.

There being no further business, Commissioner Kelly made a motion to **Adjourn** the meeting and it was seconded by Commissioner Busbice.

James H. Jenkins, Jr.
Secretary

JHJ:sch

The Advocate ONLINE Baton Rouge, Louisiana

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Published on 2/2/01

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LWFC votes to ban boat traffic on part of Lake Martin

By JOE MACALUSO
Advocate outdoors writer

Fearing irreparable harm to one of the nation's top bird-breeding areas, the Louisiana Wildlife and Fisheries Commission voted to ban all boat traffic on a small area of Lake Martin in St. Martin Parish.

Wildlife and Fisheries biologist Gary Lester said the 131-acre site in the lake is ". . . one of the largest and most significant bird rookeries not only in the state, but also the United States."

Lester said that boaters have already marked trees and removed cypress knees to establish routes into the bird-nesting area.

"This access disrupts breeding and nesting. Adults will leave nests and in doing so break eggs or leave the nest unattended which opens the nests to predators," Lester said.

"It (boat traffic) could also lead to the area being abandoned as a rookery."

His call was supported by several groups, notably the all-volunteer Lake Martin Commission.

"For 10 years we have tried to balance usage of the area. We've been told by experts that it's a world-class site," said LMC member Theresa Privat. "We do not want to do anything to affect this area adversely. That's why we're asking for this action."

LWFC chairman Dr. Jerry Stone asked about the effects on hunting and commercial and recreational fishing.

Cindy Brown from The Nature Conservancy, the primary landowner of the 131-acre site, said hunting season is over and that fishermen do not go into the area because the water is too shallow.

Acting on the request for a Declaration of Emergency, the LWFC voted unanimously to ban motorized and nonmotorized boats from the area from Feb. 15-July 31.

The LWFC also voted to post a Notice of Intent that will impose the ban in future years.

Lester said the public will not be excluded from the area.

"The levee surrounding the lake will afford viewing and birdwatching in the main rookery area," Lester said.

He identified the area as a major nesting site for roseate spoonbills and several species of egrets and herons.

In other action, the LWFC voted to close shrimping in an area from the eastern bank of Freshwater Bayou to the Atchafalaya River Ship Channel at Eugene Island.

State marine biologist Marty Bourgeois said samples taken in that area showed the shrimp were smaller than the 100-per-pound count size.

"This action is being taken to protect these small white shrimp," Bourgeois said.

The commission also voted to pass along LDWF reports on striped mullet, southern flounder, black drum and sheepshead to the State Legislature. Act 1316, the gill nets-ban act voted in in 1995, demanded state biologists annually survey and report on the status of these four species.

Marine biologist Joey Shepard said stock assessments show mullet, drum and sheepshead are well above allowable population indices in state waters. He also said current biological models of the flounder stock range from just below the target index to above numbers that allow for sustainable numbers of the species.

The LWFC also honored Region 9 agent Ross Mire of Charenton with the Shikar Chapter-Safari Club International's Officer of the Year award.

The commission also learned that LDWF enforcement agents issued 950 citations and 107 warnings in January.

Nearly 40 percent of the citations involved migratory game bird violations.

It voted the June meeting date for June 7 in Baton Rouge.

State Deer Study leader David Moreland also advised the LWFC that state wildlife biologists will meet with members of the South Louisiana Chapter of the Quality Deer Management Association to discuss the QDMA's proposal to seek a 6-point limit on taking bucks in Iberville, Pointe Coupee and West Baton Rouge parishes for the 2001-2002 hunting season.

hunting season.

The LDWF's proposal for 2001-2002 hunting seasons on resident game -- deer, squirrels, rabbit, quail and pheasant -- will be announced at the LWFC's March 1 meeting.

Moreland said he was presenting the information to make the commission members aware of this groundbreaking proposal.

"We are trying to work with the South Louisiana Chapter members to let them know they need to work with landowners in those three parishes and to get their recommendation on a proposal like this," Moreland said.

Stone ended the meeting by announcing that Terry Denman from Monroe has been named to fill the seat vacated by Many's Glynn Carver in December when Carver's six-year term on the commission expired.

No one has been named by Gov. Mike Foster to fill the remaining three years of the term for Warren Delacroix, the New Orleans area commercial fishing equipment supplier who resigned in December.

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COMMISSION MEETING
ROLL CALL

Thursday, February 1, 2001
Baton Rouge, LA
Wildlife & Fisheries Building

	Attended	Absent
Jerry Stone (Chairman)	✓	
Tom Gattle	✓	
Bill Busbice	✓	
Tom Kelly	✓	
Norman McCall		✓
Terry Denmon		✓
_____		

Mr. Chairman:

There are 4 Commissioners in attendance and we have a quorum.

Secretary Jenkins is also present.

AGENDA

LOUISIANA WILDLIFE AND FISHERIES COMMISSION
BATON ROUGE, LA
February 1, 2001
10:00 AM

1. Roll Call

2. Approval of Minutes of January 4, 2001

3. Presentation of Shikar Safari Club International Officer of the Year Award - Winton Vidrine

4. Enforcement & Aviation Reports/January - Keith LaCaze

5. Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin (St. Martin Parish) - Gary Lester

6. Consideration of Offshore Shrimp Closure - Martin Bourgeois

7. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead - Joey Shepard

8. Division Report - Deer Program/Quality Deer Management - Dave Moreland

9. Set June 2001 Meeting Date

10. Public Comments

11. Adjournment

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ENFORCEMENT CASE REPORT

JANUARY 2001

REGION 1:
18 Agent positions

PARISHES: BIENVILLE, BOSSIER, CADDO, CLAIBORNE, DESOTO, RED RIVER WEBSTER

TOTAL CASES	79

TOTAL	DESCRIPTION OF CITATION
7	Boating Safety
3	Angling W/O A Resident License
5	Take Game Fish Illegally (Snagging)
1	Transport Fish W/O Required License
2	Hunt W/O A Resident License
1	Hunt W/O A Non-Resident License
3	Hunt W/Unplugged Gun
1	Hunt, Stand, Or Loiter On A Public Road
2	Hunt Ducks W/O A State Stamp (State Charge)
6	Hunt Deer From Public Road
2	Take Illegal Deer Open Season
4	Failure To Wear Hunter Orange
3	Hunt Ducks W/O A Federal Stamp
2	Hunt MGB W/Unplugged Gun
6	Hunt MGB Illegal Hours
2	Hunt MGB Over Bait

2	Hunt MGB From Moving Motorboat
2	Possession Untagged MGB
1	Transport Completely Dressed MGB
1	Wanton Waste Of MGB
4	Using Lead Shot In Area Designated As Steel Shot
2	Possession Over Limit Ducks
1	Take Non-Game Birds
1	Hunt MGB W/O State Stamp (Federal Charge)
1	Hunt MGB W/O Non-Resident License
2	Not Abiding By R&R On WMA
1	Simple Possession Marijuana
9	Operate ATV On Public Road
1	Driving W/O Operators License
1	Aiding & Abetting By Placing Bait

WRITTEN WARNINGS:

TOTAL 13	DESCRIPTION OF CITATION
2	Boating Safety
1	Angling W/O Resident License
1	Not Abiding By Commission Rules & Regs.
2	Hunt W/O Resident License

1	Hunt MGB W/O State Stamp (State Charge)
1	Hunt W/O Resident Big Game License
1	Hunt Deer From Public Road
4	Failure To Wear Hunter Orange

CONFISCATIONS:

CONFISCATION DESCRIPTION
15 bass; 1 reel; 27 catfish; 4 rod & reel combos; 1 bag marijuana; 3 shotguns; 1 rifle; 1 deer; 53 ducks; 1 dove; 31 shotgun shells; 46 lead shot shells; 1 dowitcher.

TOTAL OF EACH CATEGORY FOR REGION 1

TOTAL	DESCRIPTION
7	Boating
6	Commercial Fishing
29	Federal Migratory
0	Littering
13	Miscellaneous
3	Recreational Fishing
21	State Hunting/Trapping
13	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	**Public Assistance**

REGION 2:
20 Agent positions

PARISHES: E. CARROL, JACKSON, LINCOLN, MOREHEAD, QUACHITA, RICHLAND UNION, W. CARROL

TOTAL CASES	62

TOTAL	DESCRIPTION OF CITATION
2	Boating
1	Operate ATV On Public Road
2	Hunt Deer From Public Road
2	Hunt With Unplugged Gun
7	Take Illegal Deer Open Season
2	Possess Over Limit of Deer
2	Hunt W/O Resident Big Game License
3	Hunt W/O Resident Basic License
1	Sell Fur-bearing Animals W/O License
3	Hunt From Public Road
4	Hunt From Moving Vehicle
2	Failure To Abide by Rules & Regulations on WMA
3	Discharge Firearm From Public Road
2	Failure To Wear Hunters Orange
1	Hunt Without Muzzleloader License

1	Possession Of Buckshot In Closed Season
2	Hunt Deer Illegal Hours
1	Possession Of Untagged Deer
6	Use Lead Shot In Steel-shot Area
2	Hunt MGB With Unplugged Gun
7	Hunt MGB Illegal Hours
1	Possession Of Non-Game Birds
1	Hunt MGB Without Federal Stamp
4	Angle Without A Resident License

WRITTEN WARNINGS: 17

TOTAL	DESCRIPTION OF CITATION
2	Failure To Wear Hunters Orange
1	Failure To Abide By Rules & Regulations On WMA
3	Failure To Comply With PFD Requirements
1	Hunt W/O Resident Big Game License
6	Hunt Without Resident License
1	Expired Boat Registration Certificate
2	Angle Without A License
1	No Boat Numbers

CONFISCATIONS:

CONFISCATION DESCRIPTION
5- Rifles, 14- Ducks, 1- Hawk Talon, 9-Deer, 2-Shotguns, 5- Shotgun Shells, 1-Spotlight.

TOTAL OF EACH CATEGORY FOR REGION 2

TOTAL	DESCRIPTION
2	Boating
-0-	Commercial Fishing
17	Federal Migratory
-0-	Littering
1	Miscellaneous
4	Recreational Fishing
38	State Hunting/Trapping
17	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
10	Public Assistance (Assisting Stranded Motorists & Boaters)

REGION 3

26 Agent positions

**PARISHES: AVOYELLES, GRANT
NATCHITOCHES
RAPIDES, SABINE
VERNON, WINN**

TOTAL CASES	122

TOTAL	DESCRIPTION OF CITATION
6	Boating
2	Angling W/O License In Possession
1	Angle W/O Non-Resident License In Possession
2	Use Illegal Mesh Nets (2 ½ Gill Net)
2	Fail To Report Commercial Fish Data
7	Hunt Deer Illegal Hours
9	Hunt From Moving Vehicle
12	Hunt Deer From Public Road
8	Fail To Wear Hunters Orange
5	Hunt M.G.B. W/O State Stamp
2	Hunt W/O Non-Resident Basic License
2	Hunt W/O Non-Resident Big Game License
3	Hunt With Un-Plugged Gun
3	Hunt Or Take Illegal Deer Open Season
4	Hunt, Stand Or Loiter From Public Road
6	Hunt W/O Basic Resident License

2	Hunt Wild Quadrupeds Illegal Hours
1	Hunt W/O Resident Big Game License
2	Possession Of Buckshot During Closed Gun Deer Season
13	Not Abide By Rules & Regulations
6	Hunt Duck W/O Federal Stamp
3	Hunt M.G.B. W/Lead Shot In Area Designated Steel Shot Only
1	Hunt M.G.B. Illegal Hours
5	Posses Over Limit Of Ducks
5	Transport Completely Dressed M.G.B. (Ducks-No Heads Or Wings)
3	Hunt Geese Closed Season
2	Littering
1	Resisting An Officer
1	Possession Of Firearm By Convicted Felon
3	Illegal Spotlighting From Public Road

WRITTEN WARNINGS:

TOTAL 9	DESCRIPTION OF CITATION
3	Boating
1	Angling W/O A Resident License In Possession
1	Hunt, Stand, Or Loiter From Public Road
1	Hunt W/O Resident Big Game License

1	Hunt Deer From Public Road
1	Bow Hunt W/O Bow License
1	Not Abide By Rules & Regulations

CONFISCATIONS:

CONFISCATION DESCRIPTION
2- doe deer, 2- spotlight, 2- shotgun, 1- gill net, 4- catfish, 2- gar, 4- buffalo, 35- lead shot shells, 3- rabbit, 3- opossums, 2- armadillos, 11- wood ducks, 5- canvasback ducks, 3- buckshot, 2- pintail ducks, 14- dressed ducks, 3- geese.

TOTAL OF EACH CATEGORY FOR REGION 3

TOTAL	DESCRIPTION
6	Boating
4	Commercial Fishing
23	Federal Migratory
2	Littering
5	Miscellaneous
3	Recreational Fishing
79	State Hunting/Trapping
9	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 4
24 Agent positions

PARISHES: CALDWELL, CATAHOULA
CONCORDIA, FRANKLIN
LASALLE, MADISON, TENSAS

TOTAL CASES	131

TOTAL	DESCRIPTION OF CITATION
7	Boating
3	Angling W/O A License
1	Use Gear W/O Recreational Gear License
6	Hunt W/O Resident License
3	Hunt W/O Non-Resident License
11	Hunt From Moving Vehicle
1	Hunt W/Unplugged Gun
2	Hunt From A Public Road
4	Hunt MGB W/O State Stamp
1	Obtain License Fraudulently
2	Hunt W/O Resident Big Game License
3	Hunt W/O Non-Resident Big Game License
10	Hunt Deer Illegal Hours
7	Hunt From Levee Road
1	Hunt Or Take Deer Illegal Weapon
1	Possession Over Limit Of Deer

3	Possession Of Illegally Taken Deer
9	Fail To Comply With Hunters Orange Regulation
3	Hunt W/O Muzzleloader License
1	Hunt W/O Non-Resident Muzzleloader License
1	Use Illegal Scope On Muzzleloader
7	Hunt Ducks Or Geese W/O Federal Stamp
3	Hunt MGB Illegal Hours
2	Hunt MGB From Vehicle
2	Transport Completely Dressed MGB
5	Using Lead Shot In Area Designated As Steel Shot Only
3	Hunting MGB W/Electronic Calling Device
3	Hunt MGB W/O State Duck Stamp
14	Not Abiding By Rules And Regs. On WMA
4	Failure To Have WMA Hunting Permit
1	DWI
1	Littering
2	Other Than Wildlife And Fisheries
2	Operate ATV On Public Road
2	Discharge Firearm From Public Road

WRITTEN WARNINGS:

TOTAL 3	DESCRIPTION OF CITATION
1	Hunt W/O Resident Game License
1	Use WMA W/O License
1	Other Than Wildlife And Fisheries

CONFISCATIONS:

CONFISCATION DESCRIPTION
2 geese, 16 duck breast halves, 3 deer, 5 rifles, 1 electronic call and tape, 1 shotgun....

TOTAL OF EACH CATEGORY FOR REGION 4

TOTAL	DESCRIPTION
7	Boating
0	Commercial Fishing
25	Federal Migratory
1	Littering
11	Miscellaneous
4	Recreational Fishing
83	State Hunting/Trapping
3	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
3	Public Assistance

REGION 5
24 Agent positions

PARISHES: BEAUREGARD, CALCASIEU EVANGELINE, ALLEN, CAMERON, ACADIA, VERMILION, JEFF DAVIS

TOTAL CASES	100

TOTAL	DESCRIPTION OF CITATION
9	Boating
1	Angling W/O A License
1	Angling W/O A License Non-Resident
2	Take Or Possess Undersized Black Drum
1	Take Or Possess Over Limit Black Drum
2	Sell and/or Buy Fish W/O Wholesale/Retail Dealers License
8	Hunting W/O Resident License
1	Hunt W/O Non-Resident License
3	Hunting From Moving Vehicle and/or Aircraft
2	Hunting With Unplugged Gun Or Silencer
2	Hunt Wild Quadrupeds and/or Wild Birds Illegal Hours or With Artificial Light
3	Hunt Across Public Road Or Road Right-Of-Way
1	Obtain License Fraudulently
4	Hunt Migratory Game Bird W/O State Stamp
2	Hunt Or Take Deer Illegal Hours Or With Artificial Light

4	Hunt Or Take Deer From Public Road
1	Possession Of Illegally Taken Deer
1	Possessing Fur Bearing Animals W/O License
8	Hunting Ducks Or Geese W/O Federal Stamp
3	Hunting Migratory Game Birds With Unplugged Gun
6	Hunting Migratory Game Birds Illegal Hours
2	Hunting Migratory Game Birds Illegal Hours
3	Hunting Migratory Game Birds Over Baited Area
2	Hunting Migratory Game Birds From A Vehicle
1	Hunting Migratory Game Birds With Illegal Firearm
2	Wanton Waste Of Migratory Game Birds
7	Using Lead Shot In Area Designated As Steel Shot Only
1	Possess Over Limit Of Geese
3	Possess Over Limit Of Ducks
2	Hunt Migratory Game Birds W/O State Stamp
2	Hunt Migratory Game Birds W/O State Hunting License
4	Hunting Migratory Game Birds From Public Road
2	Taking Grebe – No Season
2	Miscellaneous Federal Violation
1	Illegal Possession Of Drugs Or Marijuana

WRITTEN WARNINGS: 7

TOTAL	DESCRIPTION OF CITATION
1	Hunting W/O Resident License
5	Failure To Wear Hunters Orange
1	Boating

CONFISCATIONS:

CONFISCATION DESCRIPTION
17 black drum, ½ deer, 3 geese, 28 duck, 19 shotgun shells, 1 rod, 1 reel, 2 shotguns, 1 hunting license, 1 sheriff's ID, 2 riffles, 3 rifle cartridges, 1 mounted bobcat, 3 rabbits, 1 bag containing marijuana and rolling papers, 1 grebe.

TOTAL OF EACH CATEGORY FOR REGION 5

TOTAL	DESCRIPTION
9	Boating
2	Commercial Fishing
50	Federal Migratory
0	Littering
1	Miscellaneous
5	Recreational Fishing
33	State Hunting/Trapping
7	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
1	Public Assistance

REGION 6:
24 Agent positions

PARISHES: IBERIA, IBERVILLE, PT.COUPEE,LAFAYETTE ST.MARTIN,IBERIA IBERVILLE,W.B.R.

TOTAL CASES	161

TOTAL	DESCRIPTION OF CITATION
40	Boating
14	Hunt W/O Resident License
6	Angling W/O A License
5	Hunt From Moving Vehicle
4	Hunt From Public Road
2	Contributing To The Delinquency Of A Juvenile
3	Hunt Or Take Deer Illegally From A Boat
1	Hunt Ducks W/O Federal Duck Stamp
3	Angling W/O A Non-Resident License
5	Hunt Raccoons Illegally
2	Hunt Or Take Illegal Deer Open Season
1	Possess Overlimit Of Deer
13	Hunt Or Take Deer Illegal Hours Or With Artificial Light
4	Hunt MGB W/O State Stamp
4	Hunt On WMA W/O WMA Permit
6	Not Abiding By Rules And Regulations On WMA

5	Hunt Or Take Deer From Public Road
4	Hunt From A Moving Vehicle
2	Hunt Or Discharge Firearm From Levee Road
7	Hunt Ducks W/O Federal Stamp
8	Use Leadshot In Steel Shot Only Area
1	Hunt MGB From Motorboat
1	Littering
14	Hunt MGB Illegal Hours
1	Hunt MGB From Public Road
1	Hunt W/O Muzzleloader License
1	Fail To Wear Hunters Orange
1	Possess Overlimit Of Ducks
2	Possess An Illegally Taken Deer Open Season

WRITTEN WARNINGS:

TOTAL 16	DESCRIPTION OF CITATION
3	Boating
2	Use WMA W/O License
3	Fail To Wear Hunters Orange
3	Fail To Comply With Hunter Safety Requirements
3	Hunt W/O Resident Big Game License

1	Hunt W/O Resident License In Possession
1	Not Abiding By Rules/Regulations On Levee

CONFISCATIONS:

CONFISCATION DESCRIPTION
12 deer, 2 vehicles, 4 rifles, 1 headlight and battery, 3 shotguns, 1 boat, motor and trailer, 3 rod and reels, 6 raccoons, 29 leadshot shells, 1 piece of litter, 1 outboard motor, 8 wood ducks, 3 mallards, 3 muzzleloaders, 2 gadwalls.

TOTAL OF EACH CATEGORY FOR REGION 6

TOTAL	DESCRIPTION
40	Boating
0	Commercial Fishing
33	Federal Migratory
1	Littering
12	Miscellaneous
9	Recreational Fishing
66	State Hunting/Trapping
16	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

REGION 7:

22 Agent positions

PARISHES: ASCENSION, E.B. ROUGE, E. FELICIANA, LIVINGSTON, ST. HELENA, ST. TAMMANY, TANGIPAHOA, WASHINGTON, W. FELICIANA

TOTAL CASES	51

TOTAL	DESCRIPTION OF CITATION
4	Boating
5	Hunt W/O Basic Hunting License
4	Hunt W/O Resident Big Game License
1	Hunt W/O Non-Resident Big Game License
2	Hunt W/O WMA Permit
1	Hunt W/O Bow License
2	Hunt W/Unplugged Gun
3	Hunt W/O Hunters Orange
3	Hunt MGB Illegal Hours
3	Hunt Doves Closed Season
13	Failure To Abide By Commission Rules And Regs.
2	Violate DMAP Rules
1	Use Lead Shot In Area Designated For Steel Shot Only
1	Possession Of Illegally Taken Deer
1	Take Illegal Deer Open Season

2	Hunt Deer Illegal Methods
1	Possession Of Live Non-Game Quadrupeds
1	Failure To Report Commercial Data
1	Littering

WRITTEN WARNINGS:

TOTAL 5	DESCRIPTION OF CITATION
2	Boating
2	Hunt On WMA W/O Permit
1	Fishing W/O Resident License

CONFISCATIONS:

CONFISCATION DESCRIPTION
1 rifle, 1 deer, 2 mallard ducks, 3 wood ducks, 1 dove breast, 1 license, 3 doves, 9 trip tickets.

TOTAL OF EACH CATEGORY FOR REGION 7

TOTAL	DESCRIPTION
4	Boating
1	Commercial Fishing
7	Federal Migratory
1	Littering
0	Miscellaneous

0	**Recreational Fishing**
38	**State Hunting/Trapping**
5	**Written Warnings**

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
1	**Public Assistance** **CHANGED FLAT TIRE ON INTERSTATE**

REGION 8
18 Agent positions

PLAQUEMINE, ST. BERNARD,
ORLEANS, JEFFERSON
ST. CHARLES

TOTAL CASES	117

TOTAL	DESCRIPTION OF CITATION
29	Boating
18	Angling W/O A Fishing License
1	Angling W/O A License Non-Resident
3	Angling W/O Saltwater License
1	Taking/Poss. Over Limit of Freshwater fish
4	Take/Poss. O/L Red Drum (On Water)
3	Take/Poss. Undersized Black Drum(Recreational)
2	Take/Poss. O/L Black Drum (Recreational)
1	Fail to Comply with Charter Boat Regulations
2	Hunting W/O Resident License
2	Hunt Wild Birds with artificial light
1	Take Rabbits Illegal Methods
2	Hunt W/O Resident Big Game License
2	Hunt or Take Illegal Deer Open Season
2	Hunting Ducks W/O Federal Stamp
2	Hunting MGB Illegal Hours

2	**Hunting MGB Over Baited Area**
2	**Hunting MGB *From Moving Motorboat***
3	**Possess Untagged MGB**
2	**Rallying MGB**
8	**Transport Completely Dressed MGB**
2	**Wanton Waste of MGB**
1	**Possess Over Limit of Coots**
1	**Possess Over Limit of Ducks**
1	**Take/Poss. of Other Non-Game Birds – No Season**
1	**Hunt MGB Without State Duck Stamp**
1	**Hunt MGB Without State Hunting License**
8	**Not Abiding By Rules & Regulations on WMA**
1	**Hunting W/O WMA Permit**
2	**Operating Vehicle While Intoxicated**
1	**Littering**
3	**(Other Than Wildlife and Fisheries)**
1	**Criminal Trespass**
1	**Operate ATV Vehicle on Public Road**
1	**Flight From an Officer**

WRITTEN WARNINGS:

TOTAL 18	DESCRIPTION OF CITATION
3	Angling W/O A Fishing License
2	Failure to Display Valid Certificate Decal
1	Collect Reptile Without Basic Fishing License
1	No Boat Numbers
1	Operate Unregistered Motorboat
2	Failure to Comply with PFD Requirements
8	Not Abiding By Rules & Regulations on WMA

CONFISCATIONS:

CONFISCATION DESCRIPTION
Returned to Water....Red Drum(3)....Destroyed...Deer Carcass(Doe)(1)....Seized and returned...Boat(1)...Outboard Motor(1)....Donated....Red Drum(57)....Black Bass(13)....Black Drum(26)...Channel Catfish(legal)(203)...Channel Catfish(undersized)(61)...Squirrel(1)...Mottled Hen(1)...Deer Head(3)...Ducks(43)...Duck Breast(43)...Coots(24)...Rabbit Box Traps(3)...Wood Ducks(6)...Mottled Ducks(2)...Spotted Sea Trout(16) Hardware Confiscated...Shotgun(2)...Spotlight(2)...Live Lead Shot(24)...Spent Lead Shot(26)...Rod & Reel(1)...Gun Shells(9)...LA Drivers License(1)...Boat(1)...Outboard Motor(1)...Fishing Poles(4)

TOTAL OF EACH CATEGORY FOR REGION 8

TOTAL	DESCRIPTION
29	Boating
1	Commercial Fishing
27	Federal Migratory
1	Littering
19	Miscellaneous
35	Recreational Fishing
5	State Hunting/Trapping
18	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
3	Public Assistance

REGION 9:

25 Agent positions

PARISHES: ASSUMPTION, ST. JAMES
ST. JOHN, ST. MARY
TERREBONNE, LAFOURCHE
JEFFERSON-GRAND ISLE
LOWER ST. MARTIN

TOTAL CASES	127

TOTAL	DESCRIPTION OF CITATION
15	Boating
4	Angling W/O A License
1	Angling W/O A License Non-Resident
4	Take Undersized Red Drum
5	Take Undersized Black Drum
1	Take O/L Black Drum
1	Fail To Have Commercial License In Possession
1	Take Commercial Fish W/O Commercial License
1	Take Commercial Fish W/O Commercial Gear License (Crab Traps)
1	Transport W/O Required Resident License
3	Use Crab Traps W/O Required Markings
1	Remove Contents Legal Crab Traps
5	Violate Crab Trap Escape Ring Requirements
1	Theft Of Crab Trap
6	Hunting W/O Resident License

1	Hunting W/O Non-Resident License
7	Hunting From Moving Vehicle
5	Hunting W/Unplugged Gun
1	Possess Live Wild Quadrupeds W/O Permit
10	Hunt Wild Quadrupeds Illegal Hours
3	Hunt From Public Road
1	Fail To Comply W/Hunter Safety Regulations
2	Hunt W/O Resident Big Game License
3	Hunt Deer Illegal Hours
3	Hunt Deer From Public Road
3	Fail To Wear Hunters Orange
1	Take Raccoons Illegally
1	Possessing FBA W/O License
1	Trap FBA W/O Trapping License
1	Hunting Geese W/O Federal Stamp
1	Hunting MGB With Unplugged Gun
4	Hunting MGB Illegal Hours
1	Hunting MG Over Baited Area
2	Hunting MGB From Moving Motorboat
1	Hunting MGB With Illegal Firearm

3	Using Lead Shot In Area Designated As Steel Shot Only
1	Possession Of Live MGB Illegally
2	Hunting Geese Closed Season
4	Possess O/L Of Ducks
2	Hunting Gallinules Closed Season
2	Hunt MGB Without State Stamp
1	Hunt MGB State Hunting License
1	Illegal Spotlighting From Public Road
1	Hit and Run/Boat
3	Not Abiding Rules & Regulations WMA (Permanent Structures)
1	Littering
2	Not Abiding By WMA Rules And Regulations (Hunting After Hours)
1	Not Abiding By WMA Rules And Regulations (Crab Traps)
1	Not Abiding By WMA Rules And Regulations (Commercial Fishing)

WRITTEN WARNINGS:

TOTAL 19	DESCRIPTION OF CITATION
8	Boating
5	Angling W/O A License
3	Angling W/O Saltwater License
1	Hunting W/O Non- Resident License

1	Take Undersized Black Drum (Recreational)
1	Hunting W/O Resident License

CONFISCATIONS:

CONFISCATION DESCRIPTION
15 black drum, 14 gadwalls, 6 teal, 1 mallard, 6 rabbits, 12 red drum, 3 geese, 33 coots, 5 raccoons, 1 mink, 11 doves, 1 wood duck, 63 crab traps, 9 shotguns, 2 rifles, 1 rod and reel.

TOTAL OF EACH CATEGORY FOR REGION 9

TOTAL	DESCRIPTION
15	Boating
14	Commercial Fishing
25	Federal Migratory
1	Littering
9	Miscellaneous
15	Recreational Fishing
48	State Hunting/Trapping
19	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

OYSTER STRIKE FORCE **COASTAL WATERS**
3 Agent positions

TOTAL CASES	15

TOTAL	DESCRIPTION OF CITATION
2	Take Undersize Red Drum
1	Angling W/O Basic License Non-Resident
2	Take Undersize Black Drum
6	No Basic Fishing License
3	No Saltwater License
1	Unlawfully Take Oysters From State Water Bottoms

WRITTEN WARNINGS:

TOTAL 0	DESCRIPTION OF CITATION
0	

CONFISCATIONS:

CONFISCATION DESCRIPTION
6 red drum, 3 black drum, and 1 rod and reel.

TOTAL OF EACH CATEGORY FOR OYSTER STRIKE FORCE

TOTAL	DESCRIPTION
0	Boating
1	Commercial Fishing
0	Federal Migratory
0	Littering
0	Miscellaneous
14	Recreational Fishing
0	State Hunting/Trapping
0	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

STATEWIDE STRIKE FORCE **STATEWIDE**
18 Agent positions

TOTAL CASES	22

TOTAL	DESCRIPTION OF CITATION
1	Failure To Comply With Charter Boat Regulations
1	Take Commercial Fish Without Commercial Gear License
1	Take Or Possess Commercial Fish Without Vessel License
2	Hunting Ducks Or Geese Without Federal Stamp
1	Hunting Migratory Game Birds From A Vehicle
1	Using Lead Shot In An Area Designated As Steel Shot Only
2	Possession Of Live Migratory Game Birds Illegally
3	Hunting Geese Closed Season
2	Hunting Migratory Game Birds Without State Stamp
4	Take Federal Controlled Fish In Closed Season
4	Fish Federal Waters Without Federal Permit

WRITTEN WARNINGS:

TOTAL 2	DESCRIPTION OF CITATION
1	Failure to Wear Hunter's Orange
1	Failure To Display Valid Certificate Decal

CONFISCATIONS:

CONFISCATION DESCRIPTION
77 shark dorsal fins, 1 dove, 2 sacks of oysters, 2 gray ducks, 2 mallard ducks.

TOTAL OF EACH CATEGORY FOR SPECIAL STRIKE FORCE

TOTAL 25	DESCRIPTION
0	Boating
11	Commercial Fishing
11	Federal Migratory
0	Littering
0	Miscellaneous
0	Recreational Fishing
0	State Hunting/Trapping
2	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
3	Public Assistance

SEAFOOD INVESITGATIVE UNIT **STATEWIDE**
8 Agent positions

TOTAL CASES	12

TOTAL	DESCRIPTION OF CITATION
5	Fail To Maintain Records
3	Transport W/O Required License
2	Fail To Report Commercial Fisheries Data
1	Federal-Lacey Act
1	Federal-Business Reef Fish Permit Violation

WRITTEN WARNINGS:

TOTAL 0	DESCRIPTION OF CITATION
0	

CONFISCATIONS:

CONFISCATION DESCRIPTION
15 lbs. lane snapper, 6 undersize black drum.

TOTAL OF EACH CATEGORY FOR SEAFOOD INVESTIGATIVE UNIT

TOTAL	DESCRIPTION
0	Boating
12	Commercial Fishing
0	Federal Migratory

0	Littering
0	Miscellaneous
0	Recreational Fishing
0	State Hunting/Trapping
0	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

S.W.E.P. COASTAL WATERS
8 Agent positions

TOTAL CASES	6

TOTAL	DESCRIPTION OF CITATION
2	Take Undersized Black Drum
2	Take Overlimit Of Red Drum
2	Take Overlimit Of Black Drum

WRITTEN WARNINGS:

TOTAL 0	DESCRIPTION OF CITATION
0	

CONFISCATIONS:

CONFISCATION DESCRIPTION
29 red drum, 24 black drum, 1 flat boat, 1 outboard motor, 4 rod and reels.

TOTAL OF EACH CATEGORY FOR SWEP

TOTAL	DESCRIPTION
0	Boating
6	Commercial Fishing
0	Federal Migratory
0	Littering
0	Miscellaneous

0	Recreational Fishing
0	State Hunting/Trapping
0	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

HOURS-RUNNING TIME: 75
BOATS CHECKED: 61

FUR AND REFUGE PATROL
8 Agent positions

MARSH ISLAND,
ROCKEFELLER
STATE WILDLIFE

TOTAL CASES	14

TOTAL	DESCRIPTION OF CITATION
3	Boating
2	Take Or Possess Commercial Fish W/O A Vessel License
1	Not Abiding By Rules And Regs. On WMA
3	Hunt MGB Over Baited Area
1	Aid And Abet Others In Hunting Ducks Over Bait
1	Hunt MGB From Public Road
1	Use Lead Shot In Area Designated As Steel Shot Only
1	Possess Overlimit Of Geese
1	Hunt MGB From A Vehicle

WRITTEN WARNINGS:

TOTAL 2	DESCRIPTION OF CITATION
1	Fail To Comply With Visual Distress Signals
1	Fail To Display Valid Certificate Decal

CONFISCATIONS:

CONFISCATION DESCRIPTION
4 boxes of crabs, 5 ducks, 8 geese and 1 box leadshot shotgun shells.

TOTAL OF EACH CATEGORY FOR REFUGE PATROL

TOTAL	DESCRIPTION
3	Boating
2	Commercial Fishing
8	Federal Migratory
0	Littering
1	Miscellaneous
0	Recreational Fishing
0	State Hunting/Trapping
2	Written Warnings

TOTAL NUMBER FOR PUBLIC ASSISTANCE

TOTAL	DESCRIPTION
0	Public Assistance

TOTAL CASES -950

NOTE: WRITTEN WARNINGS = 107

ENFORCEMENT AVIATION REPORT
JANUARY, 2001

185-Amph. - 61092	185-Float - 9667Q	210 - 9467Y
Hrs. - 25.0	Hrs. - 16.8	Hrs. - 40.7

Enforcement Hours - 47.6

Other Divisions - 34.9

Total Plane Use - 82.5

Cases Made In Conjunction With Aircraft Use Resulted In Citations Issued For:

2-Take Oysters From Polluted Area

2-Unlawfully Take Oysters From State Water Bottoms

2-Fail To Cull Oysters In Proper Location

4-Violate Crap Trap Escape Ring Requirements

10-Total

Confiscations: 10 Sacks Oysters

#5
Changed by D. Puckett during meeting

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of the Administrative Procedure Act, the Wildlife and Fisheries Commission and the Department of Wildlife and Fisheries does hereby close a portion of Lake Martin, St. Martin Parish, to all ~~motorized~~ boating traffic, both motorized and non-motorized.

The closed zone encompasses one of the largest and most significant bird rookeries in not only the state, but also the U.S.; and is both a natural treasure, as well as a significant eco-tourism attraction and economic asset to the local area and the state as a whole. Continued boating traffic through the rookery is extremely disruptive to the rookery and could even lead to its relocation or demise, which would pose an imminent peril to this natural and economic asset, and to those citizens who value it. Therefore this closure is necessary on an emergency basis, particularly in light of the fact that the nesting birds will begin returning to the rookery during the month of February.

This Declaration of Emergency will become effective on February 15, 2001 and shall remain in effect for the maximum period allowed under the Administrative Procedure Act or until adoption of the final rule.

WILDLIFE AND FISHERIES

Part III. State Game and Fish Preserves and Sanctuaries

Chapter 3. Particular Game and Fish Preserves and Commissions

§333. St. Martin-Lafayette Fish and Game Preserve

That portion of the St. Martin-Lafayette Fish and Game Preserve, particularly the following described portion of Lake Martin, St. Martin Parish is hereby closed to all boating traffic, both motorized and non-motorized, said closure to remain in effect each year from February 15 through July 31 inclusive. The closed zone is described as follows:

All that certain property containing 131.94 acres more or less located in Section 31, Township 9 South, Range 6 East and Section 6, Township 10 South, Range 6 East, St. Martin Parish, Louisiana described as follows: Beginning at a point on the lake's edge located N 1 degree 59 minutes E a distance of 330 ft from a 4" X 4" concrete post, the post having State Plane Coordinates Louisiana South of X=1819303.09 ft, Y=561651.02 ft; thence N 1 degree 59 minutes E as distance of 1100 ft; thence S 88 degrees 1 minute E a distance of 2320 ft; thence S 36 degrees 54 minutes 58 seconds E a distance of 500 ft; thence S 1 degree 59 minutes W a distance of 2350 ft; thence N 88 degrees 1 minute W a distance of 660 ft; thence S 1 degree 59 minutes W a distance of 1320 ft; thence N 88 degrees 1 minute W a distance of 660 ft; thence N 1 degree 59 minutes E a distance of 2970 ft; thence N 88 degrees 1 minute W a

distance of 1320 ft to the point of beginning.

AUTHORITY NOTE: Promulgated in accordance with R.S. 36:610C and R.S. 56:1861 et seq.

HISTORICAL NOTE: Promulgated by Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 27: .

Dr. H. Jerry Stone

Chairman

James H. Jenkins, Jr.

Secretary

NOTICE OF INTENT

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

The Wildlife and Fisheries Commission and Department of Wildlife and Fisheries does hereby give its notice of intent to establish a rule for Lake Martin, St. Martin Parish.

Title 76

WILDLIFE AND FISHERIES

Part III. State Game and Fish Preserves and Sanctuaries

Chapter 3. Particular Game and Fish Preserves and Commissions

§333. St. Martin-Lafayette Fish and Game Preserve

That portion of the St. Martin-Lafayette Fish and Game Preserve, particularly the following described portion of Lake Martin, St. Martin Parish is hereby closed to all boating traffic, both motorized and non-motorized, said closure to remain in effect each year from February 15 through July 31 inclusive. The closed zone is described as follows:

All that certain property containing 131.94 acres more or less located in Section 31, Township 9 South, Range 6 East and Section 6, Township 10 South, Range 6 East, St. Martin Parish, Louisiana described as follows: Beginning at a point on the lake's edge located N 1 degree 59 minutes E a distance of 330 ft from a 4" X 4" concrete post, the post having State Plane Coordinates Louisiana South of X=1819303.09 ft, Y=561651.02 ft; thence N 1 degree 59

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AUTHORITY NOTE: Promulgated in accordance with R.S. 36:610C and R.S. 56:1861 et seq.

HISTORICAL NOTE: Promulgated by Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 27: .

The Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies of government.

Interested persons may submit comments relative to the proposed Rule to: Gary Lester, Natural Heritage Section, Department of Wildlife and Fisheries, Box 98000, Baton Rouge, LA 70898-9000, prior to Thursday, April 5, 2001.

In accordance with Act#1183 of 1999, the Department of

Wildlife and Fisheries/Wildlife and Fisheries Commission hereby issues its Family Impact Statement in connection with the preceding Notice of Intent: This Notice of Intent will have no impact on the six criteria set out at R.S. 49:972(B).

Dr. H. Jerry Stone

Chairman

James H. Jenkins, Jr.

Secretary

COVER SHEET

FAX

To: Arthur McEnany

Fax #: 342-2725

Subject: Lake Martin Rookery

Date: February 19, 2001

Pages: 7, including this cover sheet.

COMMENTS:

The attached information is a Declaration of Emergency and Notice of Intent on the Lake Martin Rookery. The Declaration of Emergency went into effect on February 15, 2001. Call if you have any further questions.

From the desk of...

Susan Hawkins

La. Dept. Of Wildlife & Fisheries
P. O. Box 98000
Baton Rouge, LA 70898-9000

225-765-2806
Fax: 225-765-0948

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of the Administrative Procedure Act, the Wildlife and Fisheries Commission and the Department of Wildlife and Fisheries does hereby close a portion of Lake Martin, St. Martin Parish, to all boating traffic, both motorized and non-motorized.

The closed zone encompasses one of the largest and most significant bird rookeries in not only the state, but also the U.S.; and is both a natural treasure, as well as a significant eco-tourism attraction and economic asset to the local area and the state as a whole. Continued boating traffic through the rookery is extremely disruptive to the rookery and could even lead to its relocation or demise, which would pose an imminent peril to this natural and economic asset, and to those citizens who value it. Therefore this closure is necessary on an emergency basis, particularly in light of the fact that the nesting birds will begin returning to the rookery during the month of February.

This Declaration of Emergency will become effective on February 15, 2001 and shall remain in effect for the maximum period allowed under the Administrative Procedure Act or until adoption of the final rule.

WILDLIFE AND FISHERIES

Part III. State Game and Fish Preserves and Sanctuaries

Chapter 3. Particular Game and Fish Preserves and Commissions

§333. St. Martin-Lafayette Fish and Game Preserve

That portion of the St. Martin-Lafayette Fish and Game Preserve, particularly the following described portion of Lake Martin, St. Martin Parish is hereby closed to all boating traffic, both motorized and non-motorized, said closure to remain in effect each year from February 15 through July 31 inclusive. The closed zone is described as follows:

All that certain property containing 131.94 acres more or less located in Section 31, Township 9 South, Range 6 East and Section 6, Township 10 South, Range 6 East, St. Martin Parish, Louisiana described as follows: Beginning at a point on the lake's edge located N 1 degree 59 minutes E a distance of 330 ft from a 4" X 4" concrete post, the post having State Plane Coordinates Louisiana South of X=1819303.09 ft, Y=561651.02 ft; thence N 1 degree 59 minutes E as distance of 1100 ft; thence S 88 degrees 1 minute E a distance of 2320 ft; thence S 36 degrees 54 minutes 58 seconds E a distance of 500 ft; thence S 1 degree 59 minutes W a distance of 2350 ft; thence N 88 degrees 1 minute W a distance of 660 ft; thence S 1 degree 59 minutes W a distance of 1320 ft; thence N 88 degrees 1 minute W a distance of 660 ft; thence N 1 degree 59 minutes E a distance of 2970 ft; thence N 88 degrees 1 minute W a

distance of 1320 ft to the point of beginning.

AUTHORITY NOTE: Promulgated in accordance with R.S. 36:610C and R.S. 56:1861 et seq.

HISTORICAL NOTE: Promulgated by Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 27: .

Dr. H. Jerry Stone

Chairman

James H. Jenkins, Jr.

Secretary

NOTICE OF INTENT

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

The Wildlife and Fisheries Commission and Department of Wildlife and Fisheries does hereby give its notice of intent to establish a rule for Lake Martin, St. Martin Parish.

Title 76

WILDLIFE AND FISHERIES

Part III. State Game and Fish Preserves and Sanctuaries

Chapter 3. Particular Game and Fish Preserves and Commissions

§333. St. Martin-Lafayette Fish and Game Preserve

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AUTHORITY NOTE: Promulgated in accordance with R.S. 36:610C and R.S. 56:1861 et seq.

HISTORICAL NOTE: Promulgated by Department of Wildlife and Fisheries, Wildlife and Fisheries Commission, LR 27: .

The Secretary of the Department of Wildlife and Fisheries is authorized to take any and all necessary steps on behalf of the Commission to promulgate and effectuate this notice of intent and the final rule, including but not limited to, the filing of the fiscal and economic impact statements, the filing of the notice of intent and final rule and the preparation of reports and correspondence to other agencies of government.

Interested persons may submit comments relative to the proposed Rule to: Gary Lester, Natural Heritage Section, Department of Wildlife and Fisheries, Box 98000, Baton Rouge, LA 70898-9000, prior to Thursday, April 5, 2001.

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Dr. H. Jerry Stone

Chairman

James H. Jenkins, Jr.

Secretary

DECLARATION OF EMERGENCY

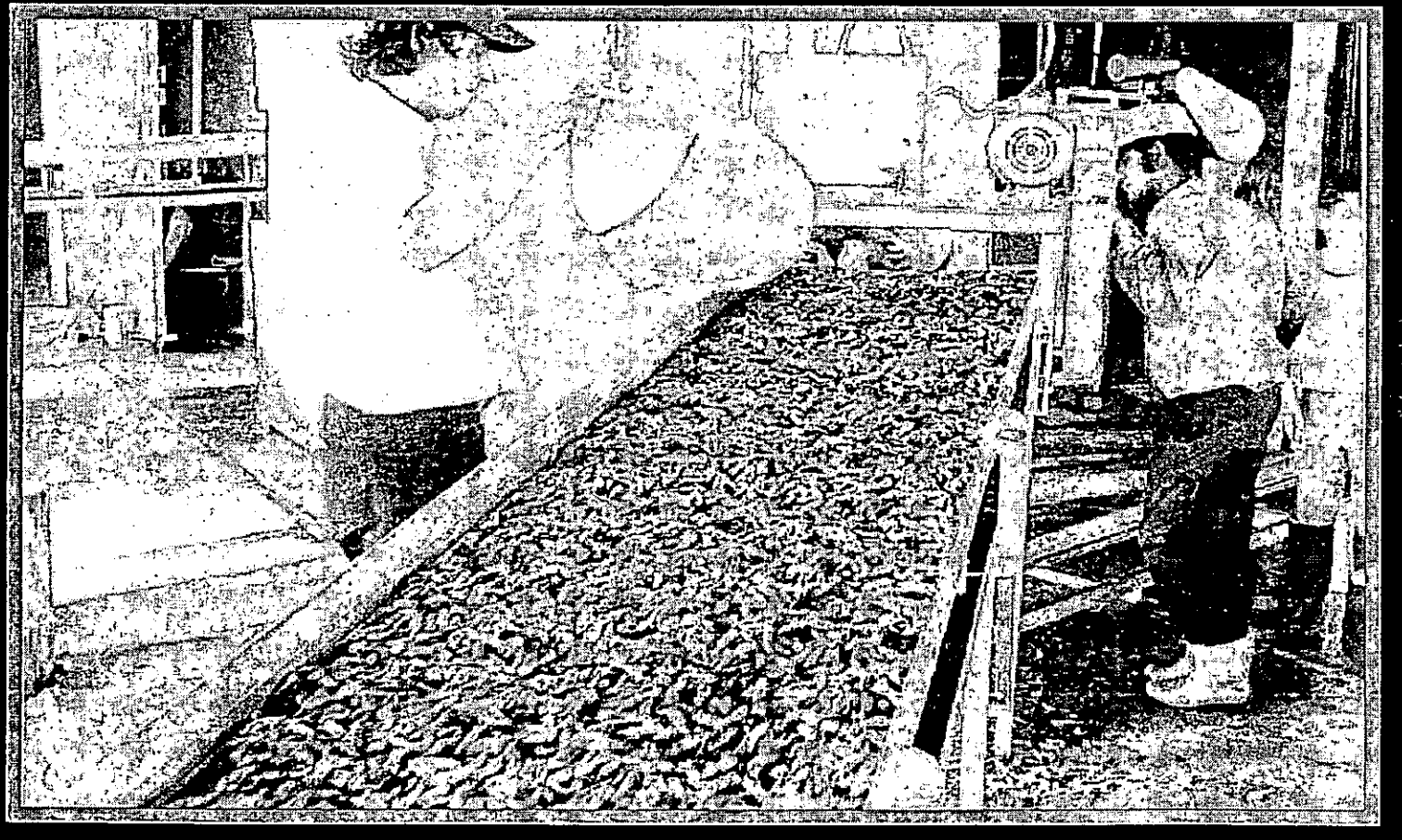
Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of the Administrative Procedure Act, the Wildlife and Fisheries Commission and the Department of Wildlife and Fisheries does hereby close a portion of Lake Martin, St. Martin Parish, to all motorized boating traffic.

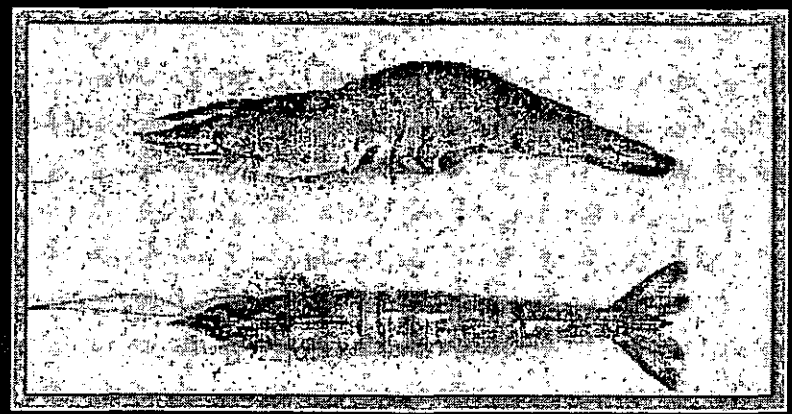
The closed zone encompasses one of the largest and most significant bird rookeries in not only the state, but also the U.S.; and is both a natural treasure, as well as a significant eco-tourism attraction and economic asset to the local area and the state as a whole. Continued boating traffic through the rookery is extremely disruptive to the rookery and could even lead to its relocation or demise, which would pose an imminent peril to this natural and economic asset, and to those citizens who value it. Therefore this closure is necessary on an emergency basis, particularly in light of the fact that the nesting birds will begin returning to the rookery during the month of February.

This Declaration of Emergency will become effective on February 15, 2001 and shall remain in effect for the maximum period allowed under the Administrative Procedure Act or until adoption of the final rule.

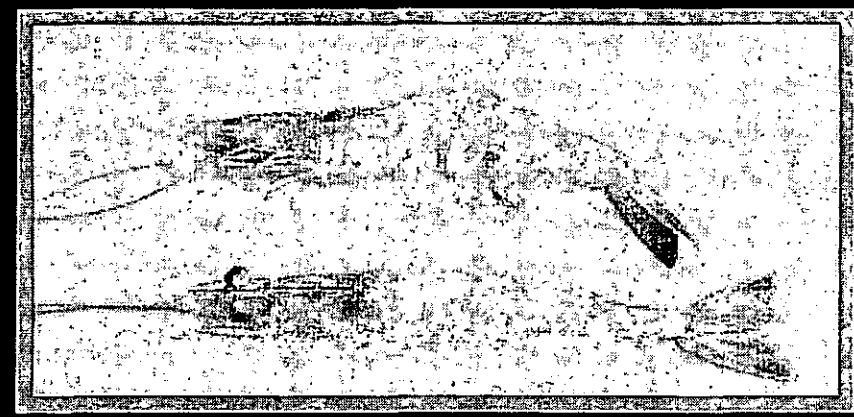
OVERVIEW OF THE 2000 LOUISIANA COMMERCIAL SHRIMP SEASON



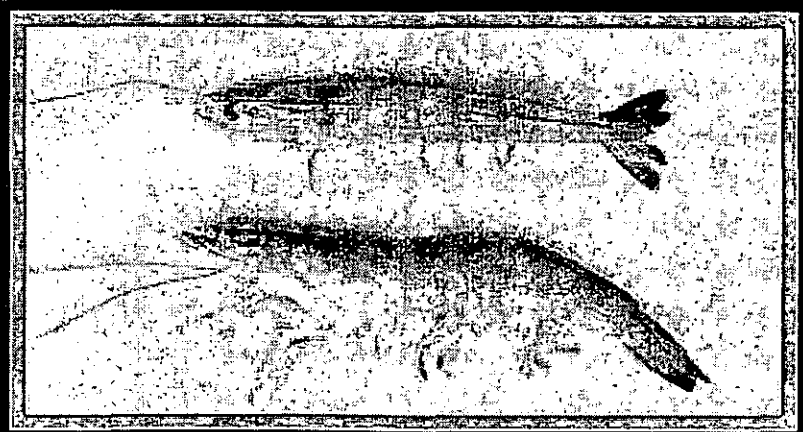
COMMERCIALLY IMPORTANT SHRIMP



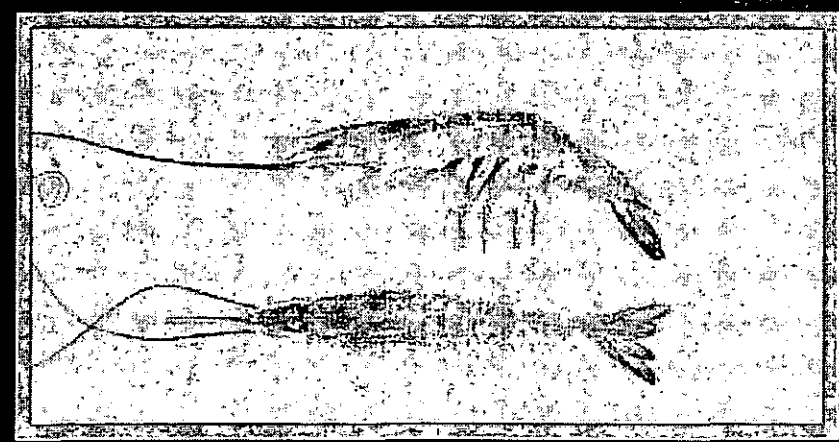
Brown Shrimp



White Shrimp



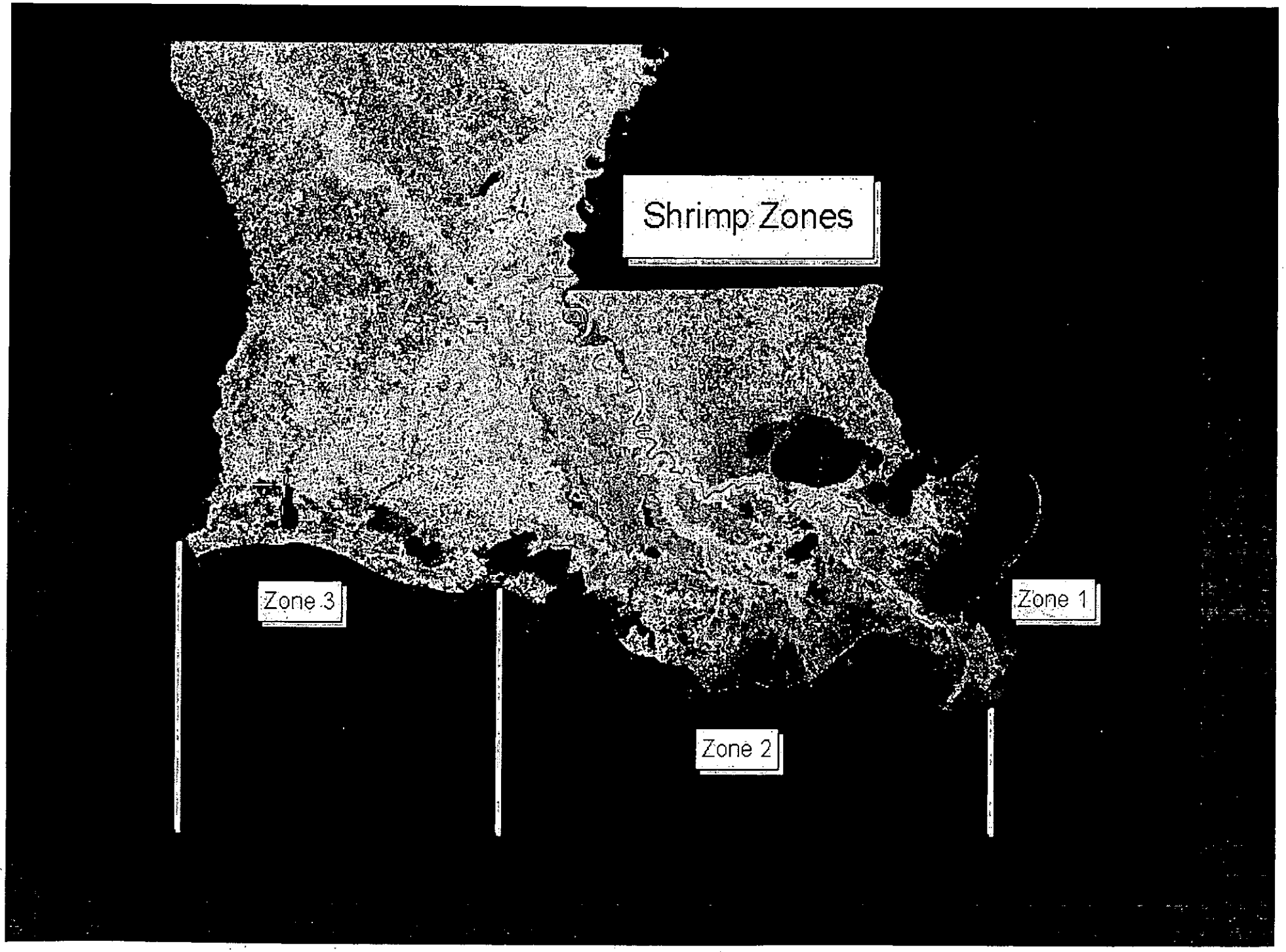
Pink Shrimp



Seabob

DATA SOURCES

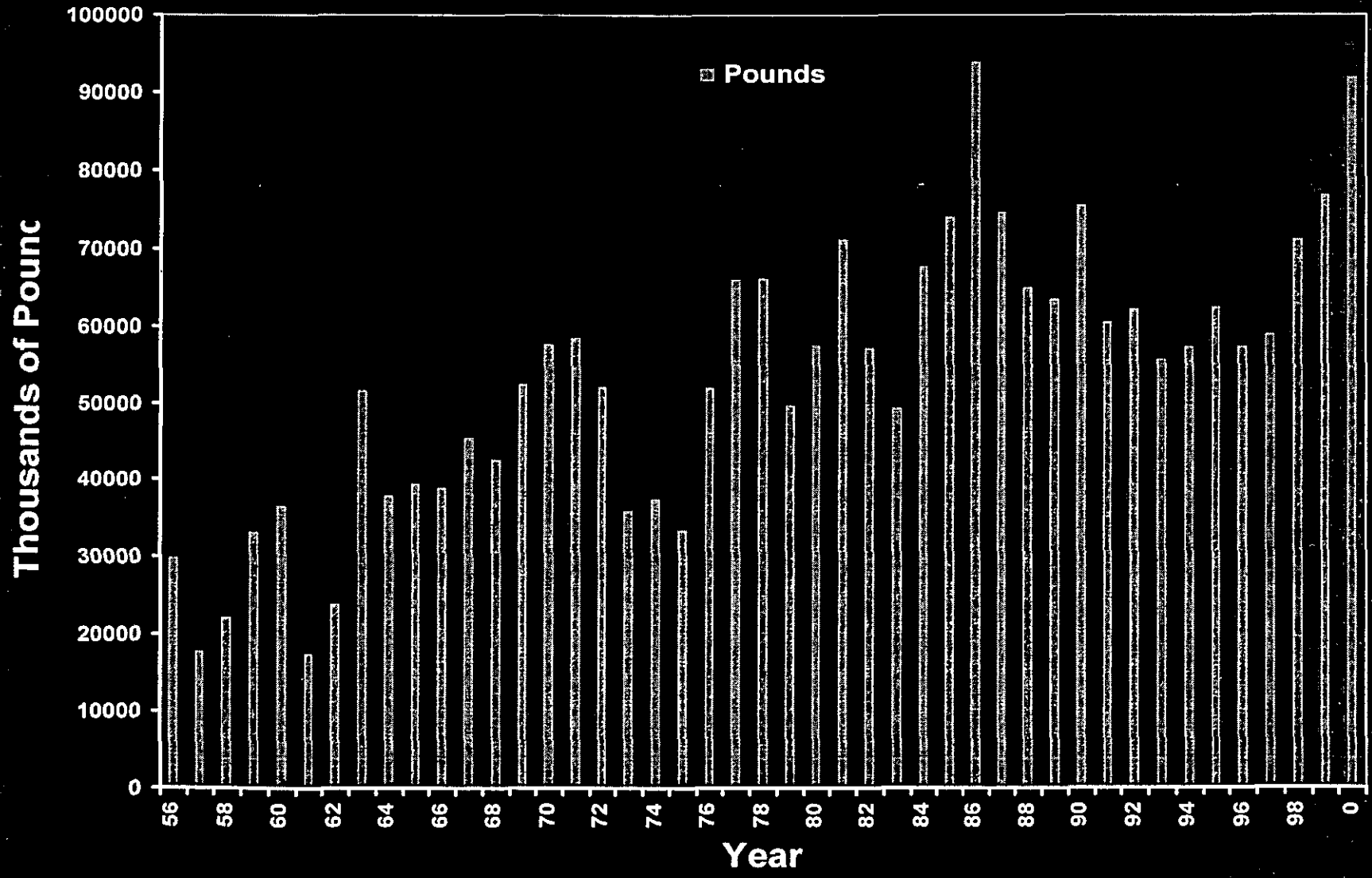
- Louisiana Department of Wildlife and Fisheries (LDWF) Trip Ticket Data
- National Marine Fisheries Service (NMFS) Landings Statistics
- Louisiana Department of Wildlife and Fisheries (LDWF) Commercial License Data


Shrimp Zones
Zone 3
Zone 2
Zone 1

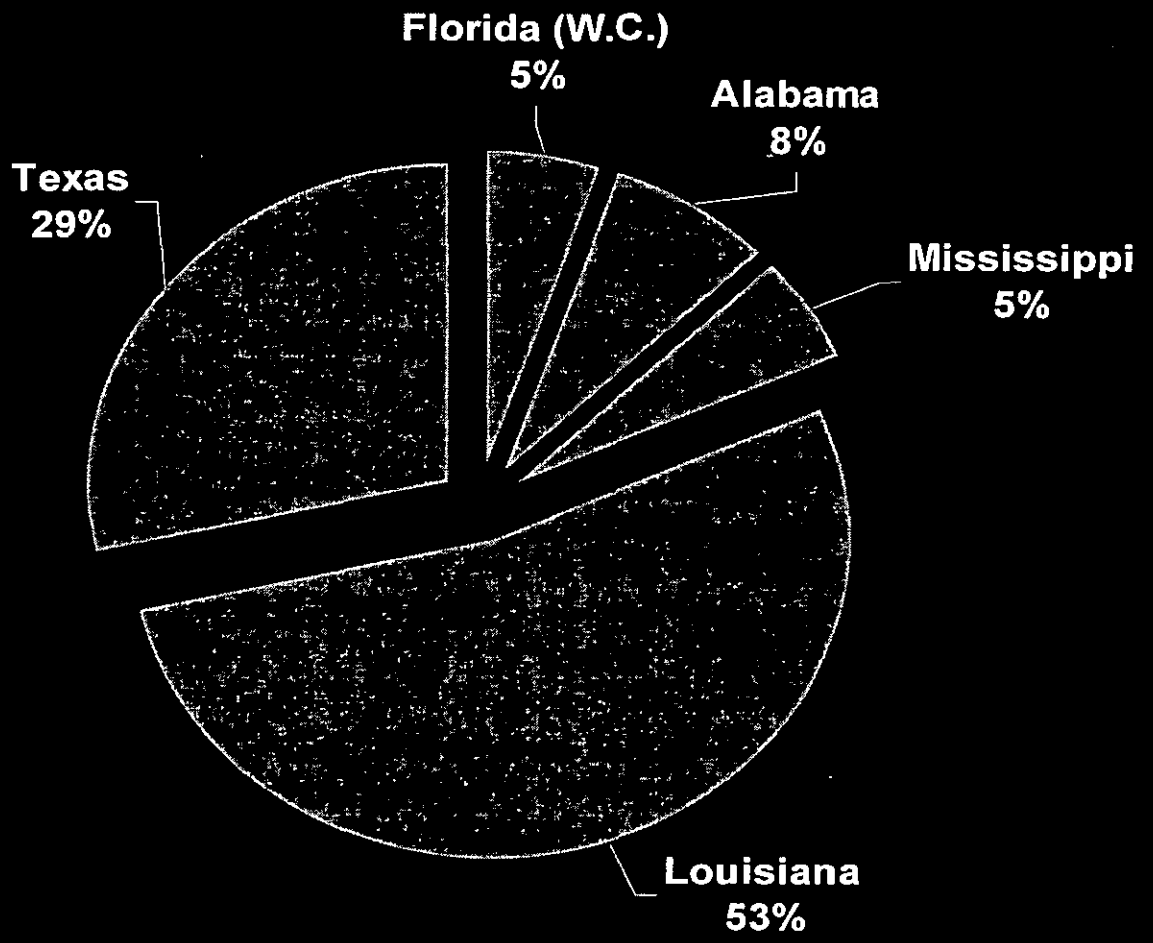
2000 SHRIMP SEASON DATES

	OPENING DATE	CLOSING DATE	DAYS OPEN
SHRIMP MANAGEMENT ZONE I			
Spring Season	05/15/00	07/25/00	72
	05/22/00	07/17/00	57
Fall Season	08/07/00	03/31/01	236
	08/21/00	12/31/00	132
SHRIMP MANAGEMENT ZONE II			
Spring Season	05/08/00	06/24/00	48
	05/08/00	07/03/00	57
Fall Season	08/21/00	12/20/00	122
Territorial Sea		02/08/00 - 03/20/00 (41-days closed)	
		02/08/00 - 05/08/00 (89-days closed)	
SHRIMP MANAGEMENT ZONE III			
Spring Season	05/08/00	06/24/00	48
Fall Season	08/21/00	12/20/00	122

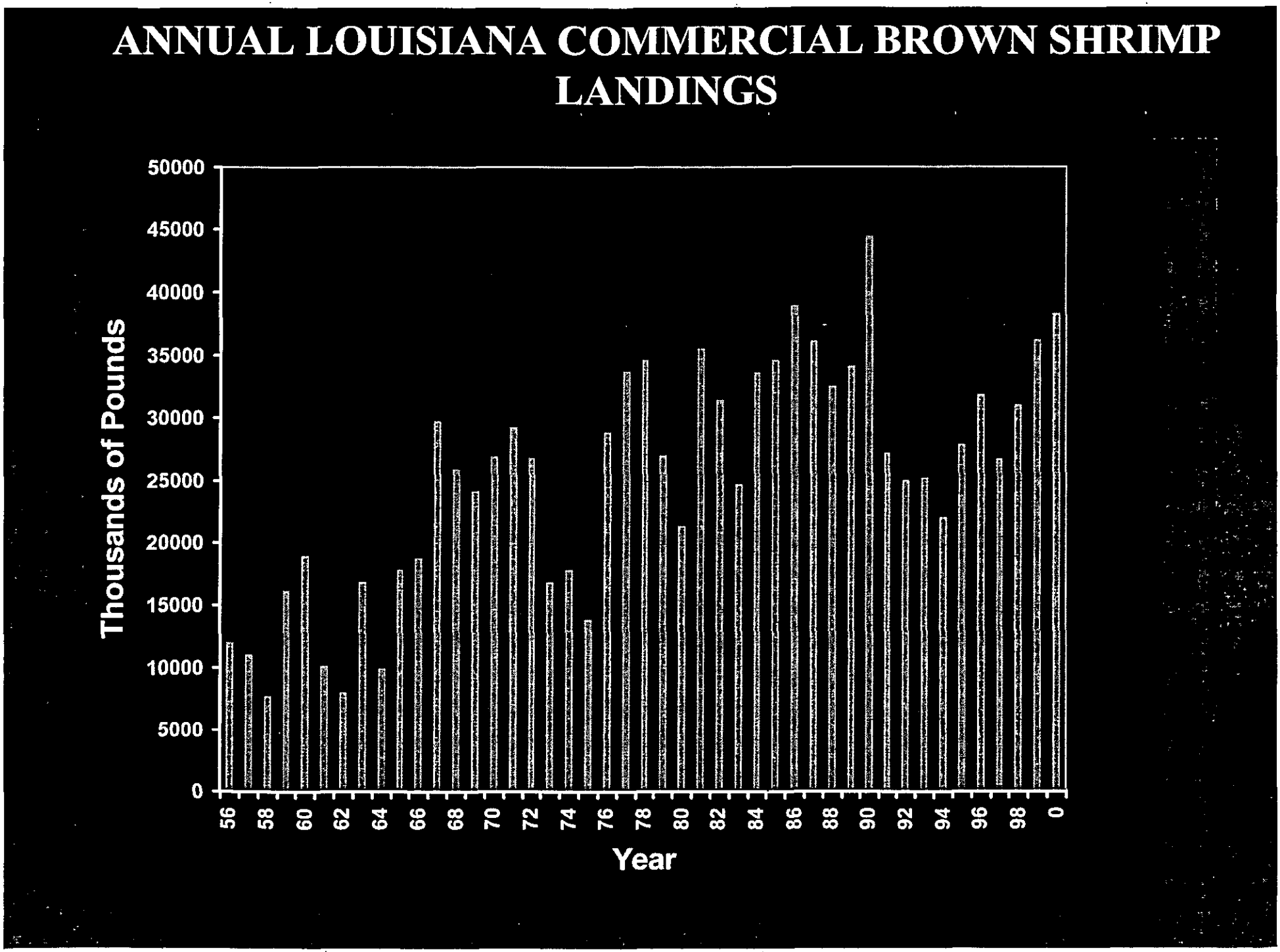
ANNUAL LOUISIANA COMMERCIAL SHRIMP LANDINGS (ALL SPECIES COMBINED, HEADS-OFF)



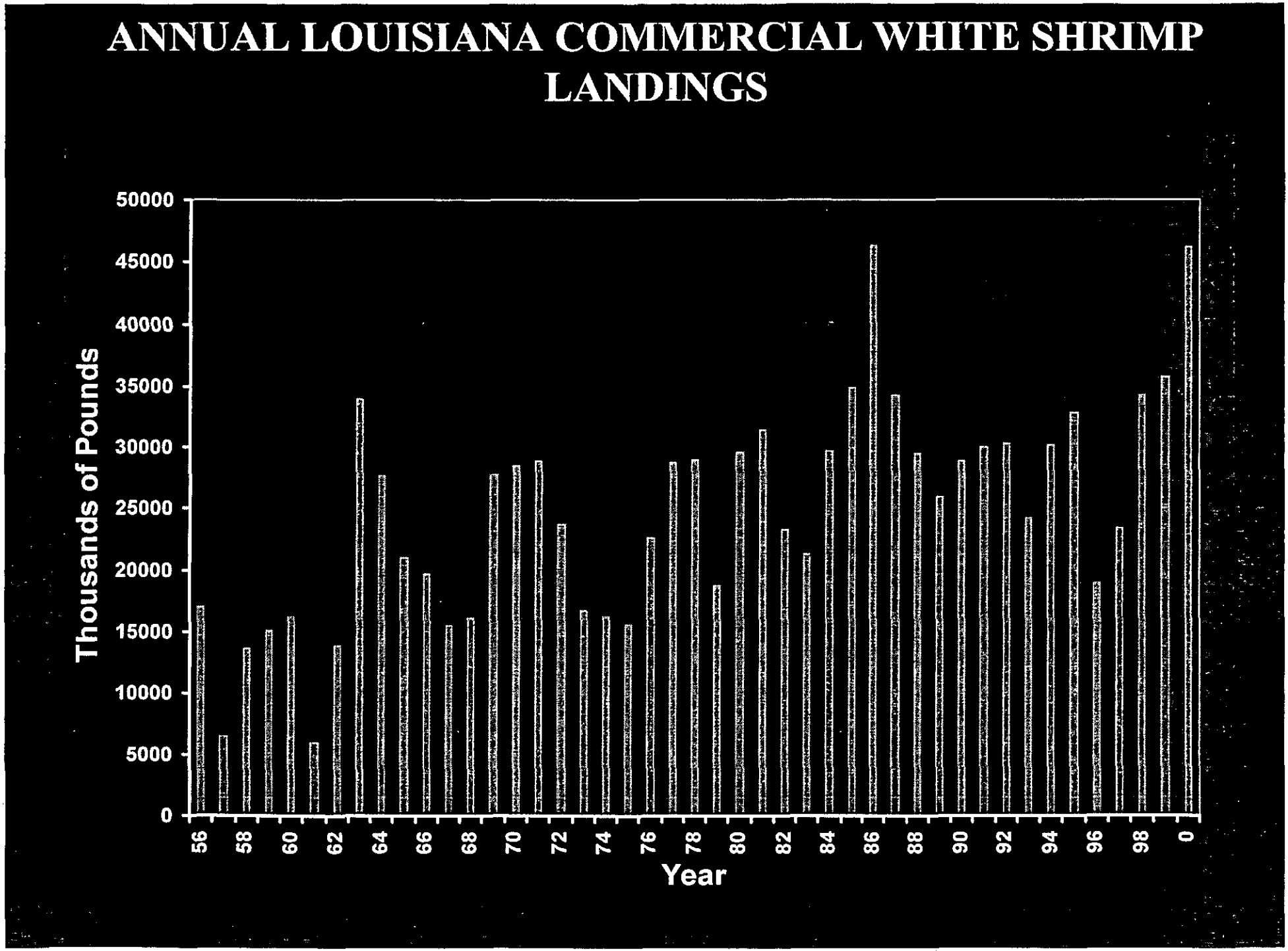
PERCENTAGE CONTRIBUTION BY STATE TO TOTAL GULF OF MEXICO 2000 SHRIMP LANDINGS



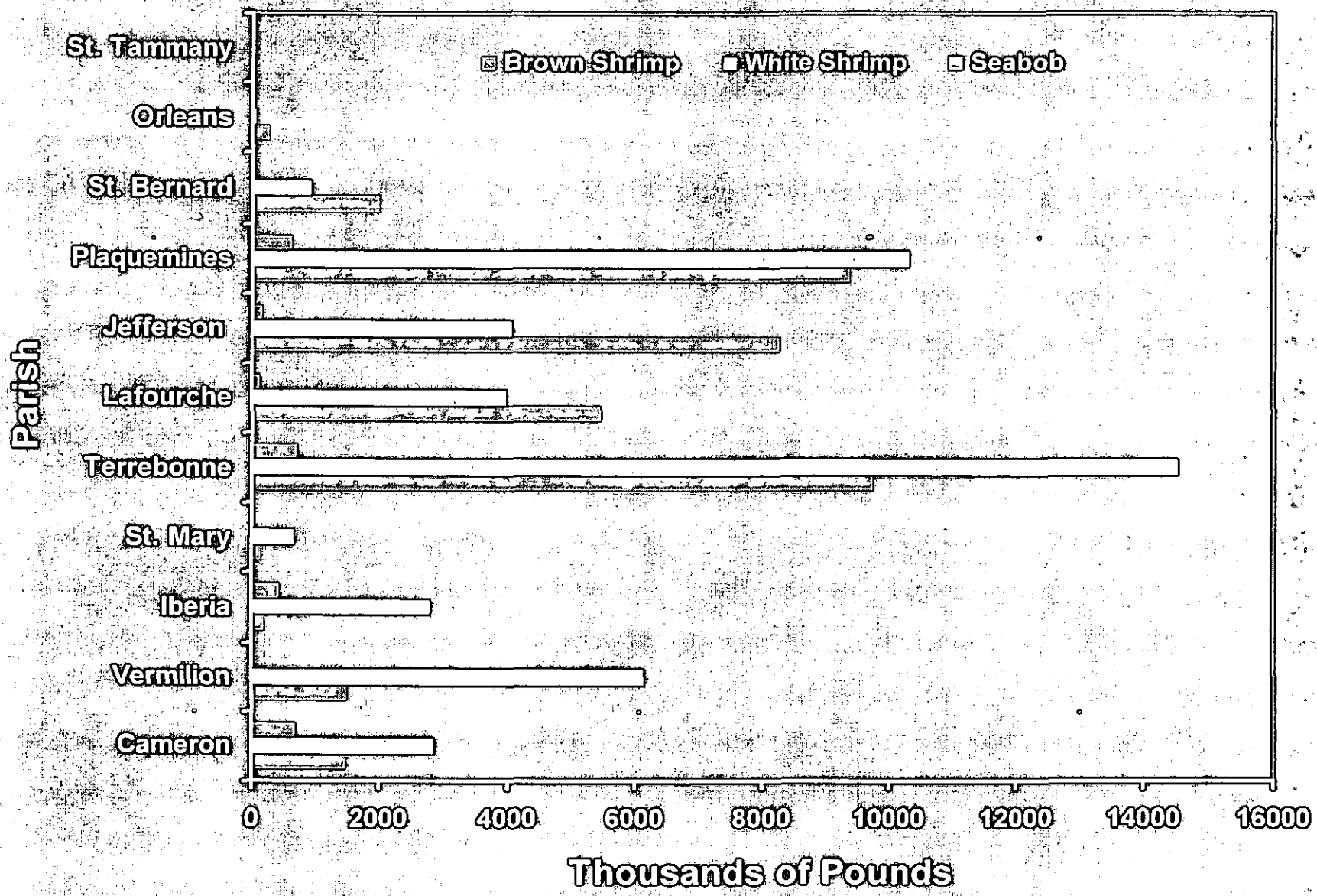
ANNUAL LOUISIANA COMMERCIAL BROWN SHRIMP LANDINGS



ANNUAL LOUISIANA COMMERCIAL WHITE SHRIMP LANDINGS



2000 COMMERCIAL SHRIMP LANDINGS BY PARISH



RESOLUTION

2001 Offshore Shrimp Season Closure
adopted by the
Louisiana Wildlife and Fisheries Commission
February 1, 2001

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Louisiana Wildlife and Fisheries Commission, and

WHEREAS, R.S. 56:497 provides the Commission shall have the authority to set special seasons for all or part of the state waters, and

WHEREAS, R.S. 56:498 provides the minimum legal count on white shrimp is 100 (whole shrimp) count per pound, except during the time period from October fifteenth through the third Monday in December when there shall be no count, and

WHEREAS, in the State's Territorial Waters, water temperatures are below 20 degrees Centigrade and the growth rate of white shrimp is therefore slow, and

WHEREAS, current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in a portion of the State's Territorial Waters do not average 100 count minimum size and additional small white shrimp are expected to recruit to these waters, now

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W, at 6 a.m. on Monday, February 5, 2001.

BE IT FURTHER RESOLVED, that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy line to the U.S. Coast Guard navigational

light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W shall reopen to shrimping at 6 a.m. on Monday, April 16, 2001.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to open special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing the State's Territorial Waters is attached to and made a part of this resolution.

Dr. H. Jerry Stone
Chairman

James H. Jenkins, Jr.
Secretary

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of R.S. 49:953(B) and R.S. 49:967 of the Administrative Procedure Act which allows the Wildlife and Fisheries Commission to use emergency procedures to set shrimp seasons, and R.S. 56:497 which provides that the Wildlife and Fisheries Commission shall have the authority to open or close the State's offshore waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W. This closure is effective at 6 a.m., Monday, February 5, 2001. The Commission also hereby orders that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy Line, shall reopen to shrimping at 6 a.m. on Monday, April 16, 2001.

R.S. 56:498 provides that the minimum legal count on white

shrimp is 100 (whole shrimp) count per pound after the third Monday in December. Current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in this portion of the State's outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters. This action is being taken to protect these small white shrimp and allow them the opportunity to grow to a more valuable size.

The Wildlife and Fisheries Commission authorizes the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary; and hereby authorizes the Secretary of the Department of Wildlife and Fisheries to open special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

Dr. H. Jerry Stone

Chairman

RESOLUTION

2001 Offshore Shrimp Season Closure
adopted by the
Louisiana Wildlife and Fisheries Commission
February 1, 2001

WHEREAS, R.S. 56:497 provides the open shrimp seasons for all or part of the state waters shall be fixed by the Louisiana Wildlife and Fisheries Commission, and

WHEREAS, R.S. 56:497 provides the Commission shall have the authority to set special seasons for all or part of the state waters, and

WHEREAS, R.S. 56:498 provides the minimum legal count on white shrimp is 100 (whole shrimp) count per pound, except during the time period from October fifteenth through the third Monday in December when there shall be no count, and

WHEREAS, in the State's Territorial Waters, water temperatures are below 20 degrees Centigrade and the growth rate of white shrimp is therefore slow, and

WHEREAS, current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in a portion of the State's Territorial Waters do not average 100 count minimum size and additional small white shrimp are expected to recruit to these waters, now

THEREFORE BE IT RESOLVED, the Wildlife and Fisheries Commission does hereby order a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W, at 6 a.m. on Monday, February 5, 2001.

BE IT FURTHER RESOLVED, that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy line to the U.S. Coast Guard navigational

light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W shall reopen to shrimping at 6 a.m. on Monday, April 16, 2001.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary.

BE IT FURTHER RESOLVED, the Wildlife and Fisheries Commission does hereby authorize the Secretary of the Department of Wildlife and Fisheries to open special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

BE IT FURTHER RESOLVED, the Declaration of Emergency closing the State's Territorial Waters is attached to and made a part of this resolution.

Dr. H. Jerry Stone
Chairman

James H. Jenkins, Jr.
Secretary

DECLARATION OF EMERGENCY

Department of Wildlife and Fisheries
Wildlife and Fisheries Commission

In accordance with the emergency provisions of R.S. 49:953(B) and R.S. 49:967 of the Administrative Procedure Act which allows the Wildlife and Fisheries Commission to use emergency procedures to set shrimp seasons, and R.S. 56:497 which provides that the Wildlife and Fisheries Commission shall have the authority to open or close the State's offshore waters to shrimping, the Wildlife and Fisheries Commission hereby orders a closure to shrimping in that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the eastern shore of Freshwater Bayou to the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W. This closure is effective at 6 a.m., Monday, February 5, 2001. The Commission also hereby orders that that portion of the State's Territorial Waters, south of the Inside/Outside Shrimp Line as described in R.S. 56:495, from the U.S. Coast Guard navigational light off the northwest shore of Caillou Boca at latitude 29° 03' 10" N and longitude 90° 50' 27" W to the Atchafalaya River Ship Channel at Eugene Island as delineated by the Channel Buoy Line, shall reopen to shrimping at 6 a.m. on Monday, April 16, 2001.

R.S. 56:498 provides that the minimum legal count on white

shrimp is 100 (whole shrimp) count per pound after the third Monday in December. Current biological sampling conducted by the Department of Wildlife and Fisheries has indicated that white shrimp in this portion of the State's outside waters do not average 100 count minimum legal size and additional small white shrimp are expected to recruit to these waters. This action is being taken to protect these small white shrimp and allow them the opportunity to grow to a more valuable size.

The Wildlife and Fisheries Commission authorizes the Secretary of the Department of Wildlife and Fisheries to close to shrimping, if necessary to protect small white shrimp, any part of the remaining Territorial Waters, if biological and technical data indicates the need to do so, and to reopen any area closed to shrimping when the closure is no longer necessary; and hereby authorizes the Secretary of the Department of Wildlife and Fisheries to open special seasons for the harvest of white shrimp in any portion of the State's inshore waters where such a season would not detrimentally impact small brown shrimp.

Dr. H. Jerry Stone

Chairman

SHEEPSHEAD
SUMMARY OF CHANGES FROM 2000 ASSESSMENT

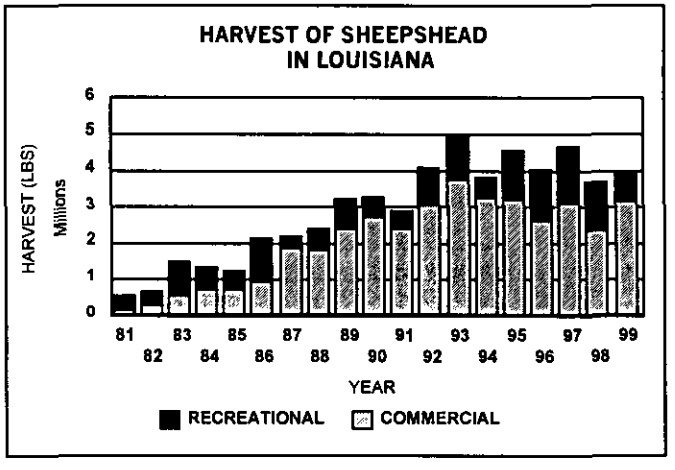
This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2000 assessment conducted for Sheepshead.

- There was one substantive change from the 2000 assessment. Formerly, mean selectivity was used in the YPR analysis. Regulatory changes in 1995 and 1997 caused the selectivity pattern of the fishery to change (See Section 5.3 and Figure 5.2). Prior to 1995, gillnets and trammel nets were fished in inshore waters of the state on primarily younger fish and were a significant contribution to the commercial landings of sheepshead. Currently, the fishery is primarily an otter trawl fishery on older fish in offshore waters and large bays and sounds. It is evident that the selectivity pattern in the most recent years are on older fish. Selectivity patterns were divided into 1994-1995, 1996, and 1997-1999 to represent the fishery during changing regulations.

2001 DOCUMENT HIGHLIGHTS

- 1999 combined commercial and recreational harvest of 3,976,918 pounds is slightly up from the previous year.

- The results of YPR analysis indicate that if M=0.2 (the most conservative value within the range of estimates), the fishery in the most recent years (1997 - 1999) was operating well below $F_{0.1}$ and F_{MAX}, with yield of 50% to 74% of maximum, and SPR at 54% to 71%. An M of 0.3 (the highest value examined) would indicate a more lightly fished stock with yield being 10% to 39% of maximum and with SPR being 72% to 93%.



- It should be noted that the method used in this assessment to determine the status of the stock, reflected in the estimates of disappearance, is not immediately sensitive to changes in regulations. It takes several years, depending on the longevity of the species, before the impact of changes in fishing mortality are realized.

SHEEPSHEAD
5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR), Spawning Potential Ratio (SPR) and catch curve analyses to estimate the impact of fishing pressure on potential yield and the spawning potential of the sheepshead stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. Catch-curve analysis estimates disappearance rates (Z') from the fishery based on the relative abundance of each age class in the harvest. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female sheepshead are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Von Bertalanffy growth parameters developed by Wilson et al. (1988) from fish harvested in Louisiana were used to calculate length and weight at age for female sheepshead. The equations are as follows:

$$\text{Female } L_t = 446(1\text{-}e^{-0.367(t+1.025)})$$

$$\text{Female } W_t = 2556(1\text{-}e^{-0.220(t+3.231)})^3$$

where, L_t = length at age t, W_t = weight at age t and t = age in years. Age at length is calculated as:

$$t = 1.025 + \ln(1\text{-}L_t/446)/\text{-}0.367$$

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically, natural mortality is estimated, as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously. No direct measure of natural mortality for sheepshead is available; therefore, several established estimation procedures were used

to derive an estimate. The procedures are presented below and are taken from Sparre and Venema (1992).

Pauly (1980) provides a method of estimating natural mortality from a set of parameters including the asymptotic length and growth rate of the fish, and the average water temperature of the environment. The growth parameters from the von Bertalanffy growth equation described in Section 5.1 and the mean annual water temperature, derived from readings from a set of four constant recorders located throughout the Barataria Bay system, were used in the calculation. The mean water temperature was 22.7°C for the period 1989 - 1992 (pers. comm., M. Kasprzak, 4/13/92). These values were incorporated into the length-based function of Pauly (1980):

$$\ln(M) = -0.0152 - 0.279 * \ln(L_\infty) + 0.6543 * \ln(K) + 0.463 * \ln(T)$$

where, ln(M) = natural log of natural mortality, $\ln(L_\infty)$ = natural log of the asymptotic length, ln(K) = natural log of the growth coefficient and ln(T) = natural log of the mean annual temperature in degrees Celsius.

Use of Louisiana data on growth and water temperature applied to Pauly's function results in a natural mortality estimate of M=0.4.

Alagaraja (1984) and Hoenig (1983) provide methods of estimating M based on the fishes lifespan or longevity, and with the assumption that M=Z. Longevity is also difficult to determine for exploited fish stocks, since the age distribution is usually truncated by fishing, but these methods are as useful as any in providing provisional estimates of natural mortality. The functions described by Alagaraja (1984) are:

$$M1\% = -\ln(0.01)/Tm$$
$$M0.1\% = -\ln(0.001)/Tm$$

where, M1% and M0.1% are the natural mortality rates corresponding to 99% and 99.9% mortality, respectively, given a fishes lifespan (Tm) in years. Sheepshead in Louisiana have been aged to 20-years-old (Wilson et al. 1988). If it is assumed that 99% or 99.9% of the fish die by age 20 then the corresponding natural mortality rates for M1% and M0.1% would be 0.2 and 0.35 respectively.

The function described by Hoenig(1983) is:

$$\ln(Z) = 1.46 - 1.01 * \ln(Tm)$$

where, when M=Z, longevity (Tm) can be defined as the maximum survival age. If we assume that the maximum age of sheepshead has been truncated due to fishing from 25 to 20 years, the resulting estimate of natural mortality, given Tm=25, would be 0.2.

Another method of estimating M is described by Rikhter and Efanov (1976) and utilizes population age at sexual maturity. The function is:

$$M = 1.521/(Tm50\%^{0.720}) - 0.155$$

where, Tm50% is the age at which 50% of the population is mature. Age 2 is assumed the age at 50% maturity for the sheepshead population (Wilson et al. 1988) resulting in an M of 0.77.

In summary, the estimated rates of natural mortality for sheepshead in Louisiana using a variety of estimation procedures are as follow:

Pauly (1980)	0.40
Alagaraja (1984)	0.20 and 0.35
Hoenig (1983)	0.20
Rikhter and Efanov (1976)	0.77

5.3 Disappearance Rates and Fishing Mortality

The disappearance rate (Z') from the fishery comprises the total mortality (natural + fishing) and some unknown rate of decreasing availability of the fish to the fishery. If the unknown rate of availability is small or nonexistent, then the disappearance rate will be a reasonable estimate of total mortality. However, if a large portion of the disappearance rate is due to fish not being available to the fishery, then assuming Z'=Z will overestimate the impact of fishing.

An annual catch-at-age matrix was developed by applying the growth equation presented in Section 5.1 to the years where length frequency data for the commercial and recreational fishery was available (1994 - 1999). Length frequency data were obtained from the Trip Interview Program (TIP) for the commercial fishery, and from the National Marine Fisheries Services' (NMFS) Marine Recreational Fishery Statistics Survey (MRFSS) for the recreational fishery. Fish with lengths greater than the asymptotic length were not used in developing catch-at-age and therefore not used in estimating disappearance rates. The elimination of these fish reduces the number of large fish that are typically older fish used in estimating disappearance and produces a more conservative estimate. The data from both of the surveys did not distinguish between sexes, therefore we assumed for this assessment that all fish sampled were female. To calculate disappearance rates, we regressed the natural log of the catch-at-age, beginning with the age at full recruitment to the fishery. This method assumes that recruitment is constant and the fishery is in equilibrium. A range of natural mortality rates were used in the assessment. After reviewing estimates of M in Section 5.2, we chose not to assume either method of estimating M was better than another, but rather to present results for the range of estimates. The range of M was from 0.20 - 0.77. We chose to use an M of 0.2 as the lowest estimate of M since it was the lowest estimate derived from the methods examined. Resulting disappearance rates using an M of 0.2 indicated a SPR values well above 30%; therefore, assessing the impact of an upper range of M was of little value in evaluating the status of the stock. However,

we did use an upper range of 0.3 to evaluate how a change in M impacted resulting yield and SPR. Disappearance rates were calculated from the combined commercial and recreational catch-at-age data by year for 1994 - 1999. The calculated disappearance rates ranged from 0.33 to 0.56 (Table 5.1 and Figures 5.1A-F).

Catch-at-age from the fishery for the years 1994-1999 was used to derive age-specific selectivities to be used in yield-per-recruit analysis. The method presented in Sparre and Venema (1992) was used to develop selectivities. This method uses a linearized catch curve to determine the selectivity of fish not yet fully recruited to the fishery. The ratio of the observed catches to the expected catches at each age is the probability of capture or selectivity of the fishery at age. This selection is then regressed in the equation:

$$\ln(1 / S_t - 1) = T1 - T2 * t$$

where, S_t = the selectivity at age t, and T1 and T2 are constants corresponding to the intercept and slope of the regression. To develop theoretical or estimated selectivities at age the following equation is used.

$$S_t \text{ (estimate)} = 1 / (1 + \exp(T1 - T2 * t)$$

Selectivities for ages up to full age-at-recruitment were used to describe the relative fishing mortality to that point; for age at full recruitment and older, selectivities are assumed to be 1, or 100% selected. Regulatory changes in the commercial fishery in 1995 and 1997 were evident in the selectivity patterns observed. Therefore, selectivities were grouped into 3 time periods to reflect those changes in the fishery. Prior to 1995, gillnets and trammel nets were fished in inshore waters of the state on primarily younger fish and were a significant contribution to the commercial landings of sheepshead. Currently, the fishery is primarily an otter trawl fishery on older fish in offshore waters and large bays and sounds. It is evident that the selectivity pattern in the most recent years are on older fish.

Selectivities are as follows:

Age	1994-1995	1996	1997-1999
0	0.00	0.00	0.00
1	0.00	0.00	0.00
2	0.03	0.03	0.01
3	0.36	0.13	0.06
4	1.00	0.68	0.25
5	1.00	1.00	0.60
6+	1.00	1.00	1.00

5.4 Yield-per-Recruit

Yield-per-recruit and SPR analysis provide basic information on fish stock dynamics by estimating the impact of mortality on yield and the spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential.

The growth parameters described in Section 5.1, sexual maturity described in Section 5.2 and the age-specific selectivities described in Section 5.3 were incorporated into the yield-per-recruit and spawning potential analysis. Fecundity estimates were not available, therefore; mean weight at age was used in the estimation of spawning potential. Natural mortality rates of 0.2 and 0.3 were used in the analysis because they are on the lower end of the range of estimates and would provide the most conservative results. These rates are also used to describe the sensitivity of M on yield and spawning potential. The results are presented in Table 5.2, which contains estimates of F_{MAX} (fishing mortality rate that produces maximum yield), $F_{0.1}$ (fishing mortality rate representing 10% of the slope at the origin of a yield-per-recruit curve), $F_{20\%SPR}$ (fishing mortality that produces 20% SPR), $F_{30\%SPR}$ (fishing mortality that produces 30% SPR), and annual estimates of F from the disappearance rates calculated in Section 5.3.

5.5 Conservation Standards

Conservation standards are intended to protect the viability of a fish stock for future generations. These standards have historically been based on a number of biological measures of the dynamics of fish stocks, depending on the availability and adequacy of data. Conservation standards should be separated into two types: a conservation threshold which is entirely biologically based and, a conservation target which considers biological measures modified by relevant social, economic, and ecological factors. A conservation threshold is a biological baseline for the harvest of a fish stock and should not be exceeded. It is the highest level of fishing mortality that will ensure that recruitment overfishing will not occur. Beyond the conservation threshold, a conservation target may be set, providing for other management goals in the fishery. Such goals may include maximizing yield in weight or numbers of fish, economic benefits or profit, employment, or some other measurable goal. These targets should be set at a fishing mortality rate below that of the conservation threshold in order to ensure that the biological integrity of the stock is not damaged by fishing.

The spawning potential ratio (SPR) concept described by Goodyear (1989), is a species specific value expressed as the ratio of the spawning stock biomass (or egg production) per recruit (SSB/R) in a fished condition to the SSB/R in an unfished condition. The concept is based on the premise that below some level of SPR, recruitment would be expected to be reduced. Goodyear (1989), recommends that in the absence of sufficient data to provide a value specific to the stock in question an SPR of 20% be used as a threshold. Work on North Atlantic ground fisheries also resulted in the calculation of a threshold SPR of 20% (Gabriel et al. 1984, Gabriel 1985). An SPR

of 20% has been recommended for Spanish and king mackerel in the Gulf of Mexico (National Oceanic and Atmospheric Administration/National Marine Fisheries Service 1995), while an SPR of 8-13% has been demonstrated to be sufficient for gulf menhaden (Vaughan 1987). In earlier analyses of Louisiana spotted seatrout fisheries (Louisiana Department of Wildlife and Fisheries 1991), an SPR threshold of 15% was recommended, based on several years of data. Mace and Sissenwine (1993) examined 90 stocks of 27 species, and reported that the average replacement SPR for all these stocks was 18.7%, while the most resilient quarter of the stocks required a maximum of only 8.6% SPR. These authors recommended an SPR of 30% be maintained when there is no other basis for estimating the replacement level, as this level was sufficient in maintaining recruitment for 80% of the stocks they examined. However, they noted that 30% may be overly conservative for an "average" stock, and reiterated the need for stock-specific evaluations of standards to enhance both safety and benefits in the fishery.

Sufficient information is not available to directly estimate a conservation threshold for sheepshead in Louisiana. However, the conservation target of 30% SPR established by the 1995 Regular Session of the Louisiana Legislature for black drum, sheepshead, southern flounder, and striped mullet appears to be adequate to maintain the sheepshead stock and prevent recruitment overfishing.

The use of any measure of the health of a fish stock as a perfect index is arguable. It is logical to conclude that growth overfishing should occur at a much lower fishing rate than that which would threaten recruitment. However, Mace and Sissenwine (1993) provide information to suggest that some stocks may have reduced recruitment at levels of fishing that would not reduce yield-per-recruit. The preferable position for making recommendations on appropriate levels of fishing for a stock is to base those recommendations on actual measures of spawning stock size and recruitment for both the species and fishery in question. This requires a base of information resulting from monitoring of both the stock and the fishery over a variety of conditions. Without this information, conservation standards may either underestimate or overestimate the potential of a fishery. If the potential is underestimated, society loses the economic and social benefits of the harvest. If the potential is overestimated and the fishery is allowed to operate beyond sustainable levels, society loses the benefits of a sustainable fishery, and recovery will require some period of rebuilding, when effort must be reduced from the non-sustainable levels (Hilborn and Walters, 1993). Some researchers have speculated that overharvest of some stocks may lead to their replacement in the ecosystem by other, often less preferred, stocks. The frequency of such replacements is unknown, and the cause of shifts in species predominance in an ecosystem are difficult to ascertain, even after the fact. Such a shift has been reported in the Georges Bank area, where prolonged, intense harvest of cod and haddock has been implicated in gradual increases in skate and spiny dogfish populations (National Oceanic and Atmospheric Administration 1993).

5.6 Status of the Stock

Sheepshead were lightly exploited until the early to mid-1980s when commercial harvest began to increase (Figure 5.3). Commercial landings have gone from 0.2 million pounds in the early1980s to 2.4 - 3.7 million pounds in the 1990s. Landings have declined in the last six years from a high of 3.7 million pounds in 1993 to 3.1 million pounds in 1999. Fishery dependent commercial data prior to 1991 was obtained from NMFS's General Canvass Landing Program, from 1991 through 1998 it was collected by the Louisiana Department of Wildlife and Fisheries' (LDWF) Monthly Dealer Reports and from 1999 to present LDWF's Commercial Reporting Requirement "Trip Tickets" program is utilized to gather this type of data.

Harvest from the recreational fishery obtained through the NMFS'S MRFSS has remained stable, between 0.4 and 1.5 million pounds, for the years examined (1981-1997), and were equal to those of the commercial fishery until 1987 when the commercial fishery began to expand (Figure 5.4). Mean catch-per-trip from the recreational fishery was calculated by selecting those trips that had sheepshead in their catch. The results are presented in Figure 5.5 along with 95% confidence limits around the mean. The catch-per-unit-effort (CPUE) indices fluctuated with no indication of a long-term downward trend. CPUE was not statistically lower than any year. Fisheries dependent recreational landings data is collected through the NMFS's MRFSS and currently collected by LDWF Biologists.

Catch-per-effort data from the Department's, fishery-independent trammel net (750' - 1 5/8" inner, 6" outer wall) and small mesh bag seine (50' -1/4" delta mesh) samples were calculated as follows:

$$\text{Mean CPUE} = (\exp (\sum \ln (\text{catch} + 1) / N)) - 1$$

where, catch is the total number caught in each set and, N is the number of samples taken annually. Trammel net and seine data were used for the period 1986-2000. Seine and trammel net CPUE fluctuated throughout the time period with no indication of a long-term downward trend; however, mean CPUE in seines for 1996 through 1998 were the lowest of the years examined with 1999 and 2000 rebounding to pre-1996 levels (Figure 5.6). Mean CPUE in trammel nets for 2000 was the highest observed. However, CPUE was only significantly higher then 1988 and 1991 (Figure 5.7).

Rules for the commercial harvest of sheepshead changed on August 15, 1995 when Act 1316 of the 1995 Regular Legislative Session, the Marine Resources Conservation Act of 1995, became effective. This act outlawed the use of "set" gill nets or trammel nets in saltwater areas of Louisiana, and restricted sheepshead harvest by the use of "strike" nets to the period between the third Monday in October and March 1 of the following year. A "Restricted Species Permit" was required in order to harvest sheepshead, and several criteria were established in order to qualify for that permit. After March 1, 1997, all harvest by gill or trammel nets was banned, and legal commercial gear to harvest

sheepshead is limited to trawls, set lines and hook and line. This set of regulations had the effect of reducing the harvest of sheepshead by this segment of the commercial fishing industry.

It should be noted that the following results of YPR and SPR analysis do not reflect the impact of current regulations described above. With this type of general assessment, it will take several years before the impact of regulations will be observed in the disappearance rates from the fishery.

The results of YPR analysis indicate that if M=0.2 (the most conservative value within the range of estimates), the fishery in the most recent years (1997-1999) was operating well below $F_{0.1}$ and F_{MAX}, with yield of 50% to 74% of maximum, and SPR at 54% to 71%. An M of 0.3 (the highest value examined) would indicate a more lightly fished stock with yield being 10% to 39% of maximum and with SPR being 72% to 93% (Table 5.2).

5.7 Research and Data Needs

Estimates of natural mortality used in the present assessment show wide variation. This variation reduces the reliability of the present assessment in providing an accurate prediction of the potential yield of the stock, and also reduces the confidence level of the present estimate of SPR. A more precise estimate of natural mortality would assist in both of these problems.

Annual sex specific age-length keys should continue to be developed to provide catch-at-age data necessary to conduct age-based population assessments. The department is in the process of collecting otoliths for development of annual age-length keys.

Sex specific fishery dependent length frequency data is essential in adequately partitioning catch from the fishery. There can be significant improvement in the accuracy of this assessment if sex is collected.

The relationship between wetlands losses or modifications and the continuation of fishery production within the state has been discussed by many authors. However, this relationship is likely to be different for the various fishery species. Understanding of this relationship for sheepshead should be an ongoing priority.

In the presence of changing regulations, fishery-dependent information is not a reliable source of data necessary to assess the status of a fish stock. However, such data is necessary to measure the effects of fishing on that stock. Consistent fishery-dependent and fishery-independent data sources, in a comprehensive monitoring plan, are essential to understanding the status of fishery stocks, and to identifying causes of changes in stock abundance. Present programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

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Table 5.1 Regression Output from the Estimation of Disappearance Rates

1994

Regression Output:

Constant		15.021596
Std Err of Y Est		0.2345901
R Squared		0.9838147
No. of Observations		11
Degrees of Freedom		9
X Coefficient(s)	-0.523156	
Std Err of Coef.	0.0223673	

1995

Regression Output:

Constant		14.850944
Std Err of Y Est		0.3675389
R Squared		0.9588283
No. of Observations		12
Degrees of Freedom		10
X Coefficient(s)	-0.469036	
Std Err of Coef.	0.0307351	

1996

Regression Output:

Constant		15.192015
Std Err of Y Est		0.3653936
R Squared		0.9599547
No. of Observations		11
Degrees of Freedom		9
X Coefficient(s)	-0.511724	
Std Err of Coef.	0.0348389	

1997

Regression Output:

Constant		15.761395
Std Err of Y Est		0.5768082
R Squared		0.9134316
No. of Observations		11
Degrees of Freedom		9
X Coefficient(s)	-0.535938	
Std Err of Coef.	0.0549965	

1998

Regression Output:

Constant		14.193558
Std Err of Y Est		0.3972007
R Squared		0.8828408
No. of Observations		10
Degrees of Freedom		8
X Coefficient(s)	-0.339532	
Std Err of Coef.	0.0437304	

1999

Regression Output:

Constant		16.063849
Std Err of Y Est		0.7846194
R Squared		0.8414228
No. of Observations		10
Degrees of Freedom		8
X Coefficient(s)	-0.562813	
Std Err of Coef.	0.0863837	

Table 5.2 - Results of Yield Per Recruit and SPR Analysis for Sheepshead

M=0.2

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	61.6150	540.8262	605	11.57%	100.00%	Benchmarks
F0.1 =	0.3422	394.1757	2,890	55.27%	72.88%	
F20% =	11.4052	537.8744	1,046	20.00%	99.45%	
F30% =	2.7621	519.2947	1,569	30.00%	96.02%	
1994 =	0.3232	438.9991	2,344	44.84%	81.21%	Estimates
1995 =	0.2690	416.3976	2,545	48.68%	77.03%	
1996 =	0.3117	416.9339	2,614	49.99%	77.78%	
1997 =	0.3359	392.0070	2,907	55.59%	72.48%	
1998 =	0.1395	271.2942	3,742	71.56%	50.16%	
1999 =	0.3628	400.8474	2,837	54.27%	74.12%	

M=0.3

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	53687092	448.1602	0	0.00%	100.00%	Benchmarks
F0.1 =	0.5492	238.4160	1,617	61.58%	53.20%	
F20% =	42.8268	393.4992	525	20.00%	87.80%	
F30% =	10.8050	367.3473	788	30.00%	81.97%	
1994 =	0.2232	212.5960	1,695	64.56%	52.48%	Estimates
1995 =	0.1690	183.3489	1,835	69.90%	45.26%	
1996 =	0.2117	188.6759	1,829	69.66%	42.10%	
1997 =	0.2359	168.6200	1,944	74.04%	37.62%	
1998 =	0.0395	46.7472	2,448	93.22%	10.43%	
1999 =	0.2628	178.0026	1,902	72.44%	39.72%	

Figure 5.1A - Disappearance Rate for Sheepshead 1994

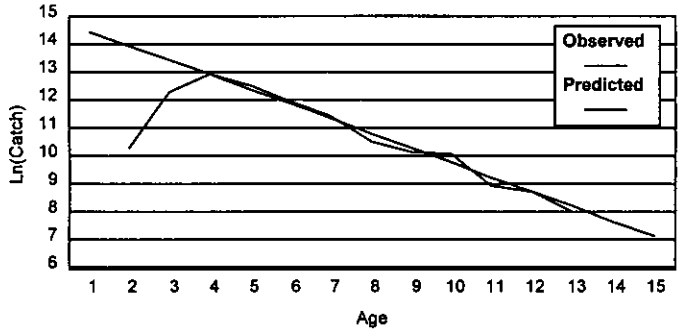


Figure 5.1B - Disappearance Rate for Sheepshead 1995

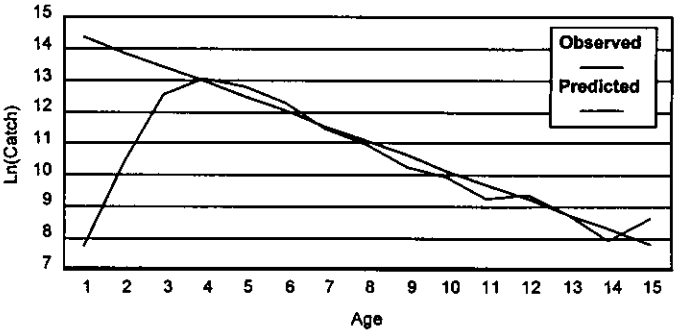


Figure 5.1C - Disappearance Rate for Sheepshead 1996

Figure 5.1D - Disappearance Rate for Sheepshead 1997

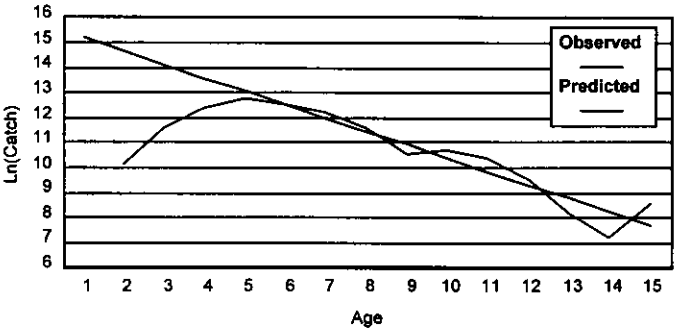


Figure 5.1E - Disappearance Rate for Sheepshead 1998

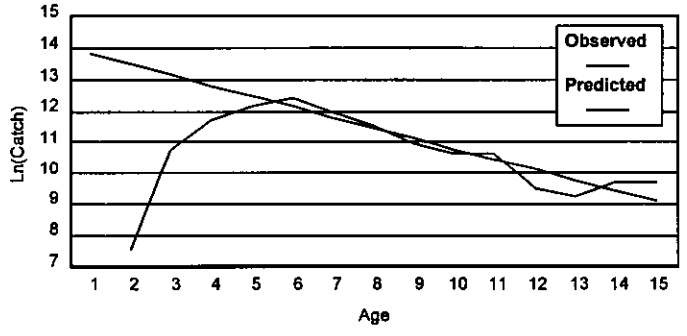


Figure 5.1F - Disappearance Rate for Sheepshead 1999

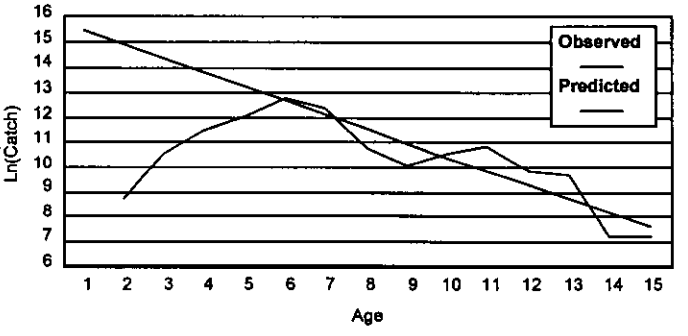


Figure 5.2 - Sheepshead Selectivity in Louisiana

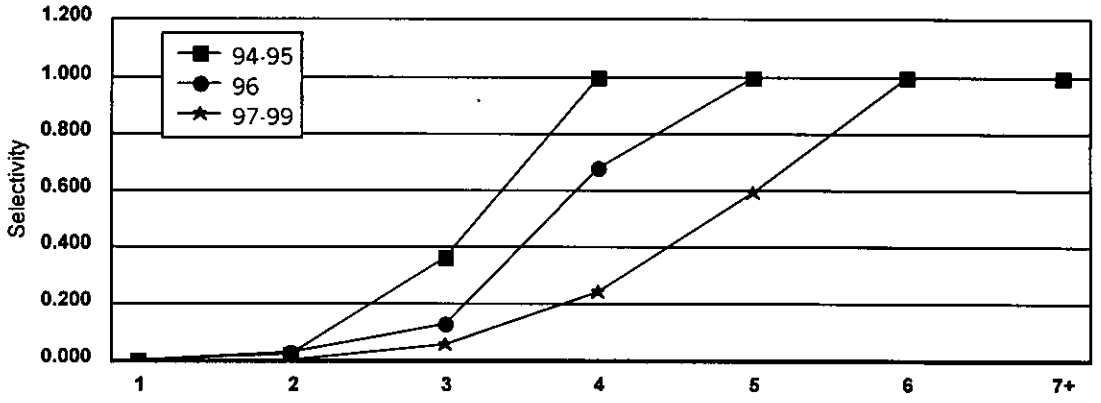


Figure 5.3 - Commercial Harvest of Sheepshead in Louisiana

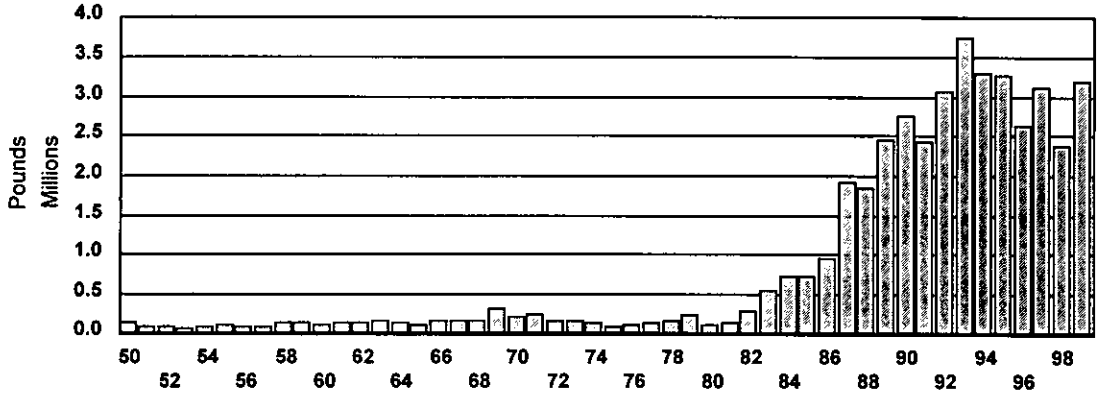


Figure 5.4 - Louisiana Commercial and Recreational Harvest of Sheepshead

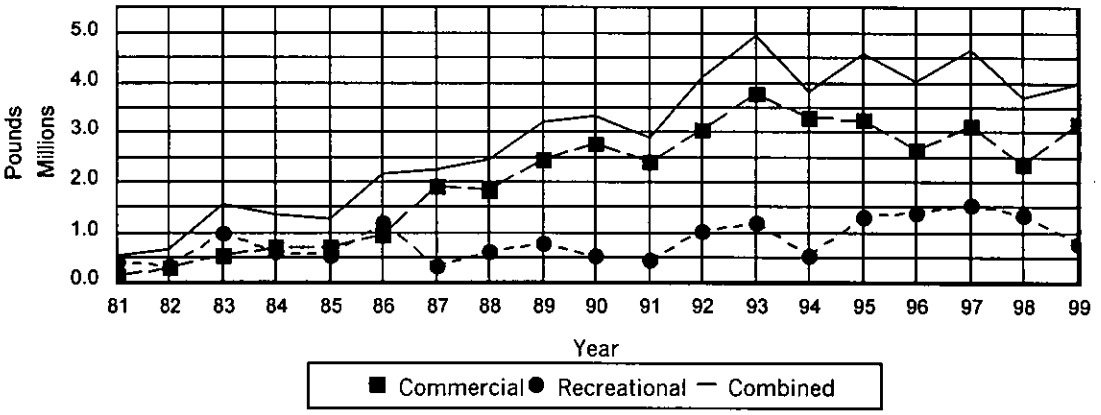


Figure 5.5 - Catch per Effort for Sheepshead in Louisiana
NMFS Marine Recreational Fishery Statistics Survey

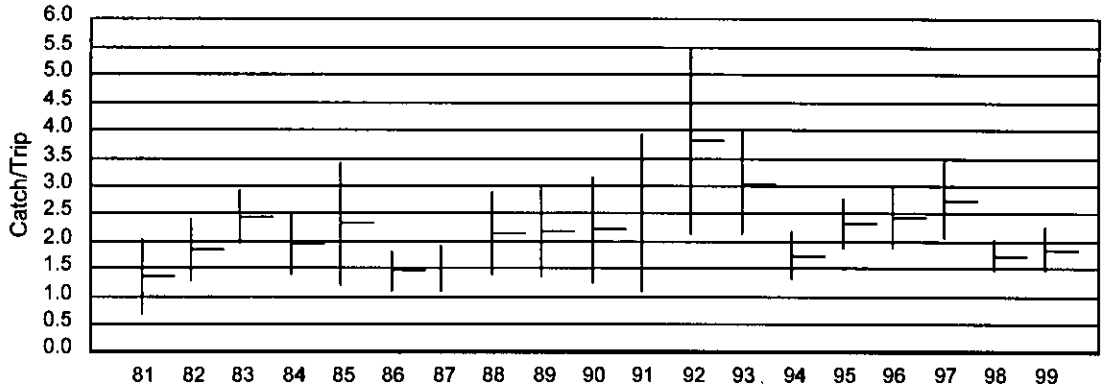


Figure 5.6 - Catch per Effort for Sheepshead in Seines
Marine Fisheries Division, Monitoring Program

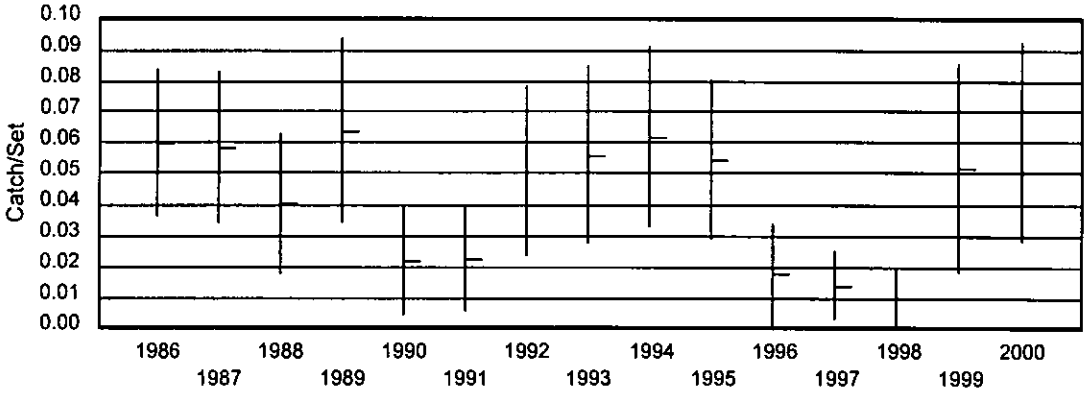
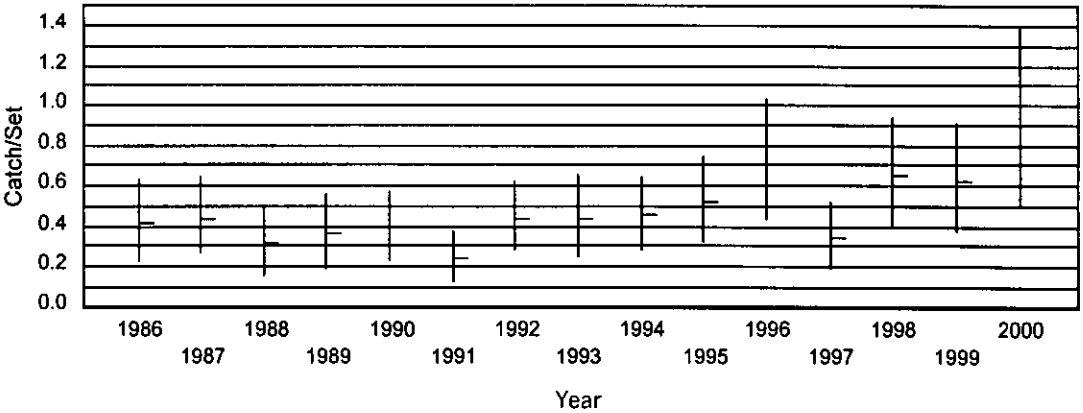


Figure 5.7 - Catch per Effort for Sheepshead in Trammel Nets
Marine Fisheries Division, Monitoring Program



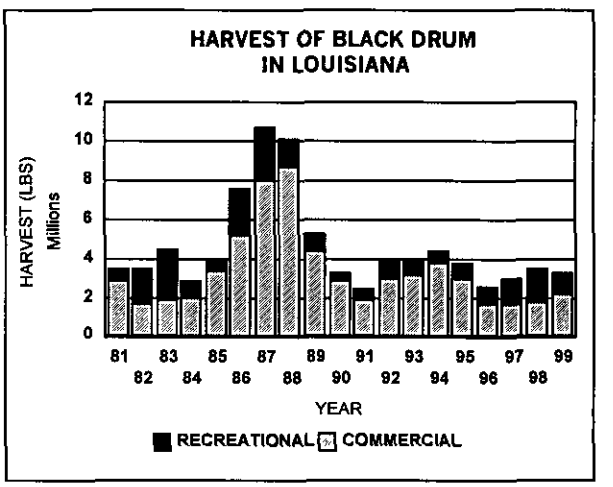
BLACK DRUM
SUMMARY OF CHANGES FROM 2000 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2000 assessment conducted for black drum.

- There is no substantive changes in methods from the 2000 assessment.

2001 DOCUMENT HIGHLIGHTS

- 1999 combined commercial and recreational harvest of 3,313,120 pounds was slightly below 1998 harvest and still lower than 1995 when harvest regulations went into effect (Act 1316).



- The results of YPR analysis indicate that if M=0.1 (the most conservative value within the range of estimates), the fishery prior to existing regulations (Act 1316) was operating above $F_{0.1}$ and below F_{MAX} with yield of 92% of maximum, and SPR at 42%. An M of 0.15 or 0.2 would indicate a more lightly fished stock with yield being 67% to 45% of maximum and with SPR being 56% to 67% respectively.

BLACK DRUM
5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR) and Spawning Potential Ratio (SPR) to estimate the impact of fishing pressure on potential yield and the spawning potential of the black drum stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female black drum are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Luquet (1996) presents several growth equations for black drum. The one chosen for this assessment was developed by Geaghan and Garson (unpublished), and is a sloped asymptote model fitted to a von Bertalanffy growth equation. The data used by Geaghan and Garson (unpublished) was from Beckman et al. (1988) who used otolith sections in aging fish caught in Louisiana waters. The sloped asymptote model proved to fit the data better than did other equations. The equation is as follows:

$$L_t = (610 + 9.959 * t) * (1 - e^{-0.6226(t-0.1229)})$$

where, L_t = length at age t, and t = age in years.

The length-weight regression described by Beckman et al. (1988) from fish harvested in Louisiana was used in this assessment. The equation is as follows:

$$\log(W) = 3.05 * \log(FL) - 4.943$$

where, W = weight in grams, and FL = fork length in millimeters.

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically, natural mortality is estimated, as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously.

This assessment follows the former Louisiana Department of Wildlife and Fisheries (1990) assessment in using a range of values for natural mortality (0.1, 0.15, 0.2) to evaluate the sensitivity of M on the resulting spawning stock.

5.3 Fishing Mortality

Fishing mortality estimates derived in the former Louisiana Department of Wildlife and Fisheries (1990) assessment were used in this assessment to evaluate the impact of current fishing regulations on the spawning potential of the stock. The former assessment did not address the concept of spawning potential as a management measure. Only recently has this concept become widely used.

The former assessment used the growth equation described in Section 5.1 to develop annual catch-at-age tables.

5.4 Yield-per-Recruit

Yield-per-recruit and SPR analysis provides basic information about the dynamics of a fish stock by estimating the impact of mortality on yield and the spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential.

The growth parameters described in Section 5.1, the age-specific fishing mortality rates described in Section 5.3, and the natural mortality rates described in Section 5.2 were incorporated into the yield-per-recruit and spawning potential analysis. Fecundity estimates derived by Wilson et al. (1992) were used to estimate spawning potential. The equation is as follows:

$$\ln(BF) = 0.76 * \ln(Age) + 12.24$$

where, BF=batch fecundity. The results are presented in Table 5.1, which contains estimates of F_{MAX} (fishing mortality rate that produces maximum yield), $F_{0.1}$ (fishing mortality rate representing 10% of the slope at the origin of a yield-per-recruit curve), $F_{20\%SPR}$ (fishing mortality that produces 20% SPR), $F_{30\%SPR}$ (fishing mortality that produces 30% SPR), and estimates of F from Section 5.3.

5.5 Conservation Standards

Conservation standards are intended to protect the viability of a fish stock for future generations. These standards have historically been based on a number of biological measures of the dynamics of fish stocks, depending on the availability and adequacy of data. Conservation standards should be separated into two types: a conservation threshold which is entirely biologically based and, a conservation target which considers biological measures modified by relevant social, economic, and ecological factors. A conservation threshold is a biological baseline for the harvest of a fish stock and should not be exceeded. It is the highest level of fishing mortality that will ensure that recruitment overfishing will not occur. Beyond the conservation threshold, a conservation target may be set, providing for other management goals in the fishery. Such goals may include maximizing yield in weight or numbers of fish, economic benefits or profit, employment, or some other measurable goal. These targets should be set at a fishing mortality rate below that of the conservation threshold in order to ensure that the biological integrity of the stock is not damaged by fishing.

The spawning potential ratio (SPR) concept described by Goodyear (1989), is a species specific value expressed as the ratio of the spawning stock biomass (or egg production) per recruit (SSB/R) in a fished condition to the SSB/R in an unfished condition. The concept is based on the premise that below some level of SPR, recruitment will be reduced. Goodyear (1989), recommends that in the absence of sufficient data to provide a value specific to the stock in question an SPR of 20% be used as a threshold. Work on North Atlantic ground fisheries also resulted in the calculation of a threshold SPR of 20% (Gabriel et al. 1984, Gabriel 1985). An SPR of 20% has been recommended for Spanish and king mackerel in the Gulf of Mexico (National Oceanic and Atmospheric Administration/National Marine Fisheries Service 1995), while an SPR of 8-13% has been demonstrated to be sufficient for gulf menhaden (Vaughan 1987). In earlier analyses of Louisiana spotted seatrout fisheries (Louisiana Department of Wildlife and Fisheries 1991), an SPR threshold of 15% was recommended based on several years of data. Mace and Sissenwine (1993) examined 90 stocks of 27 species, and reported that the average replacement SPR for all these stocks was 18.7%, while the most resilient quarter of the stocks required a maximum of only 8.6%. These authors recommended that an SPR of 30% be maintained when there is no other basis for estimating the replacement level, as this level was sufficient in maintaining recruitment for 80% of the stocks examined. However, they noted that 30% may be overly conservative for an "average" stock, and reiterated the need for stock-specific evaluations of standards to enhance both safety and benefits in the fishery.

Sufficient information is not available to directly estimate a conservation threshold for black drum in Louisiana. However, the conservation target of 30% SPR established by the 1995 Regular Session of the Louisiana Legislature for black drum, southern flounder, sheepshead, and striped mullet appears to be adequate to maintain the black drum stock and prevent recruitment overfishing.

The use of any measure of the health of a fish stock as a perfect index is arguable. It is logical to conclude that growth overfishing should occur at a much lower fishing rate than that which would threaten recruitment. However, Mace and Sissenwine (1993) provide information to suggest that some stocks may have reduced recruitment at levels of fishing that would not reduce yield-per-recruit. The preferable position for making recommendations on appropriate levels of fishing for a stock is to base those recommendations on actual measures of spawning stock size and recruitment for both the species and fishery in question. This requires a base of information resulting from monitoring of both the stock and the fishery over a variety of conditions. Without this information, conservation standards may either underestimate or overestimate the potential of a fishery. If the potential is underestimated, society loses the economic and social benefits of the harvest. If the potential is overestimated and the fishery is allowed to operate beyond sustainable levels, society loses the benefits of a sustainable fishery, and recovery will require some period of rebuilding, when effort must be reduced from the non-sustainable levels (Hilborn and Walters, 1993). Some researchers have speculated that overharvest of some stocks may lead to their replacement in the ecosystem by other, often less preferred, stocks. The frequency of such replacements is unknown, and the cause of shifts in species predominance in an ecosystem is difficult to ascertain, even after the fact. Such a shift has been reported in the Georges Bank area, where prolonged, intense harvest of cod and haddock has been implicated in gradual increases in skate and spiny dogfish populations (National Oceanic and Atmospheric Administration 1993).

5.6 Status of the Stock

Black drum were lightly exploited until the early 1980s when commercial harvest began to increase dramatically (Figure 5.1). Commercial landings went from 0.4 million pounds in 1980 to 8.7 million pounds in 1988. Regulations implemented in 1989 reduced the commercial harvest to between 2 and 4 million pounds annually. Regulations implemented by Act 1316 in 1995 may have reduced harvest even further as evidenced from 1996 - 1999, where landings were less than 2 million pounds. Commercial landings prior to 1991 was obtained from the National Marine Fisheries Service's (NMFS) General Canvass Landing Program, from 1991 through 1998 it was collected by the Louisiana Department of Wildlife and Fisheries' (LDWF) Monthly Dealer Reports and from 1999 to present LDWF's "Trip Tickets" program is utilized to gather this type of data.

Harvest from the recreational fishery collected through the NMFS's Marine Recreational Fishery Statistics Survey fluctuated, between 0.5 and 2.7 million pounds, for the years prior to regulation (1981-1988), and 0.4 to 1.6 million pounds post-regulations (Figure 5.2). Recreational harvest since regulations were implemented in 1989 have remained stable. Mean catch-per-trip from the recreational fishery was calculated by selecting those trips that had black drum in their catch. The results are presented in Figure 5.3 along with 95% confidence limits around the mean. The catch-per-unit-effort (CPUE) indices cycled throughout the period examined (1981-1999), with no indication of a long-term downward trend. The years 1985, 1991 and 1996 showed the lowest CPUE

and only significantly lower then 1982, 1986, 1993, 1994, 1998 and 1999. Fisheries dependent recreational landings data is collected through the NMFS's Marine Recreational Fisheries Statistical Survey and currently collected by LDWF Biologists.

Catch-per-effort data from the Department's, fishery-independent trammel net (750' - 1 5/8" inner, 6" outer wall) and small mesh bag seine (50' -1/4" delta mesh) samples were calculated as follows:

$$\text{Mean CPUE} = (\exp (\sum \ln (\text{catch} + 1) / N)) - 1$$

where, catch is the total number caught in each set and, N is the number of samples taken annually. Trammel net and seine data were used for the period 1986-2000. The CPUE fluctuates throughout the time period in both the seine and trammel net samples with no indication of a long-term downward trend (Figure 5.4 and 5.5). The year 1988 was the only year where CPUE in seines showed any significant difference at the 95% confidence level and, only lower than 1986, 1992, 1996 1997, 1998, 1999 and 2000. Trammel net CPUE was highly variable throughout the period as indicated by the wide confidence limits associated with the years examined. The years 1986, 1988 and 1989 had the lowest CPUE, and only significantly lower than 1996, 1998, 1999 and 2000. Mean CPUE over the last five years has been the highest observed during the time period examined (1986-2000) with 2000 being the highest recorded.

Rules for the harvest of black drum changed recently. Commercial harvest methods were changed on August 15, 1995 when Act 1316 of the 1995 Regular Legislative Session, the Marine Resources Conservation Act of 1995, became effective. This act outlawed the use of "set" gill nets or trammel nets in saltwater areas of Louisiana, and restricted black drum harvest by the use of "strike" nets to the period between the third Monday in October and March 1 of the following year. A "Restricted Species Permit" was required in order to harvest black drum , and several criteria were established in order to qualify for that permit. After March 1, 1997, all harvest by gill or trammel nets was banned, and legal commercial gear to harvest black drum was limited to trawl, set lines and hook and line. This set of regulations had the effect of reducing the harvest of black drum by this segment of the commercial fishing industry.

It should be noted that the following results of YPR and SPR analysis do not reflect the impact of current regulations described above. With this type of general assessment, it will take several years before the impact of regulations will be observed in the disappearance rates from the fishery.

The results of YPR analysis indicate that if M=0.1 (the most conservative value within the range of estimates), the fishery prior to existing regulations (Act 1316) was operating above $F_{0.1}$ and below F_{MAX} with yield of 92% of maximum, and SPR at 42%. An M of 0.15 or 0.2 would indicate

a more lightly fished stock with yield being 67% to 45% of maximum and with SPR being 56% to 67% respectively (Table 5.1).

5.7 Research and Data Needs

Estimates of natural mortality used in the present assessment show wide variation. This variation reduces the reliability of the present assessment in providing an accurate prediction of the potential yield of the stock, and also reduces the confidence level of the present estimate of SPR. A more precise estimate of natural mortality would assist in both of these problems.

Annual age-length keys should continue to be developed to provide catch-at-age data necessary to conduct age-based population assessments. The department is in the process of collecting otoliths for development of annual age-length keys.

The relationship between wetlands losses or modifications and the continuation of fishery production within the state has been discussed by many authors. However, this relationship is likely to be different for the various fishery species. Understanding this relationship for black drum should be an ongoing priority.

In the presence of changing regulations, fishery-dependent information is not a reliable source of data for assessing the status of a fish stock. However, such data are necessary to measure the effects of fishing on that stock. Consistent fishery-dependent and fishery-independent data sources, in a comprehensive monitoring plan, are essential to understanding the status of fishery stocks, and to identifying causes of changes in stock abundance. Present programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

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Table 5.1 - Results of Yield Per Recruit and SPR Analysis for Black Drum

M=0.1

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	1.000	3.0259	1,889,656	21.80%	100.00%	
F0.1 =	0.260	2.4809	4,668,498	53.87%	81.99%	Benchmarks
F20% =	1.084	3.0223	1,733,321	20.00%	99.88%	
F30% =	0.705	2.9862	2,599,982	30.00%	98.69%	
* Regulations =	0.426	2.7925	3,655,175	42.18%	92.29%	Estimate

M=0.15

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	2.100	2.1766	426,128	10.85%	100.00%	
F0.1 =	0.605	1.7506	1,704,392	43.40%	80.43%	Benchmarks
F20% =	1.405	2.1260	785,399	20.00%	97.67%	
F30% =	0.971	1.9981	1,178,098	30.00%	91.80%	
* Regulations =	0.376	1.4562	2,201,492	56.06%	66.90%	Estimate

M=0.2

	F Ratio	YPR	SPR	%SPR	%YPR	
Fmax =	3.000	1.8019	134,357	6.51%	100.00%	
F0.1 =	1.153	1.5197	625,337	30.32%	84.34%	Benchmarks
F20% =	1.633	1.6709	412,499	20.00%	92.73%	
F30% =	1.165	1.5248	618,749	30.00%	84.62%	
* Regulations =	0.326	0.8173	1,375,910	66.71%	45.36%	Estimate

* Regulations prior to 1995 and Act 1316

Figure 5.1 - Commercial Harvest of Black Drum in Louisiana

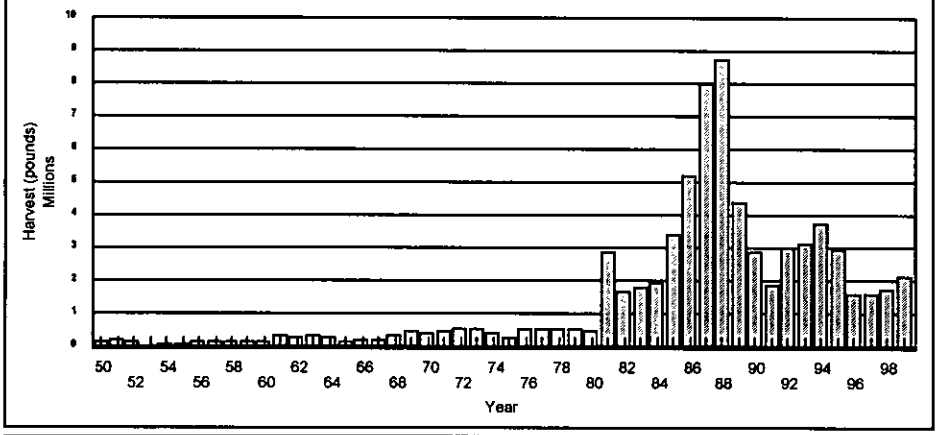


Figure 5.2 - Louisiana Commercial and Recreational Harvest of Black Drum

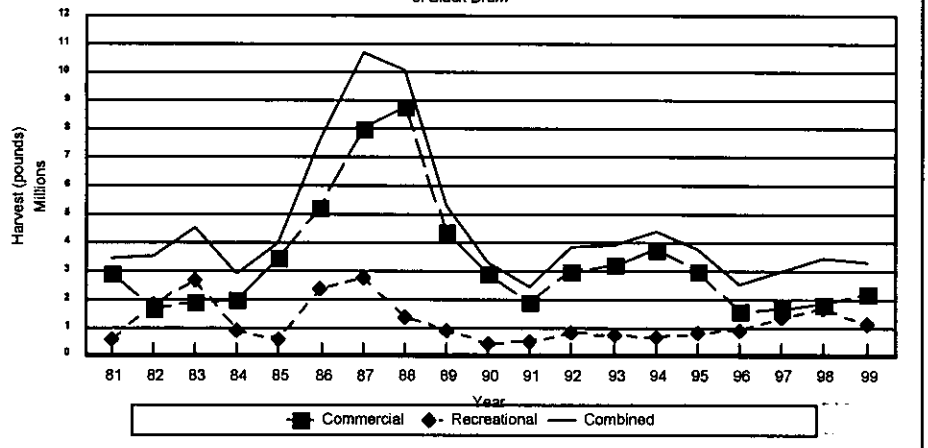
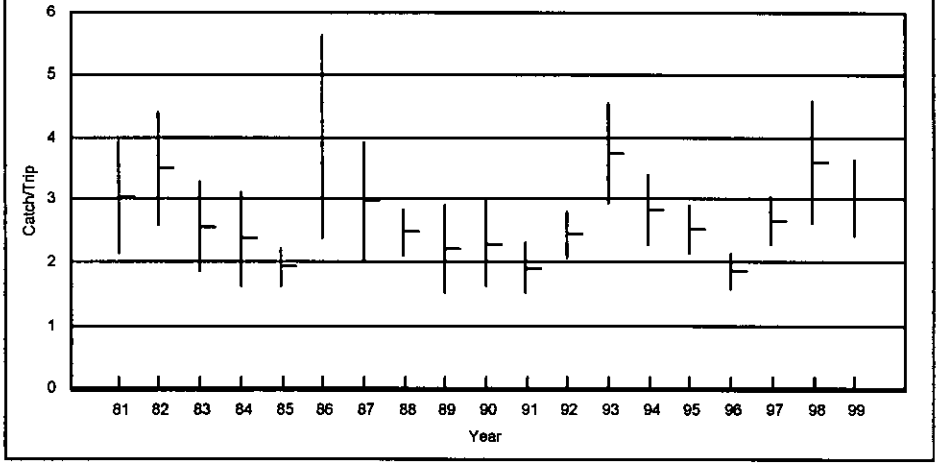


Figure 5.3 - Catch per Effort of Black Drum in Louisiana
NMFS Marine Recreational Fishery Statistics Survey



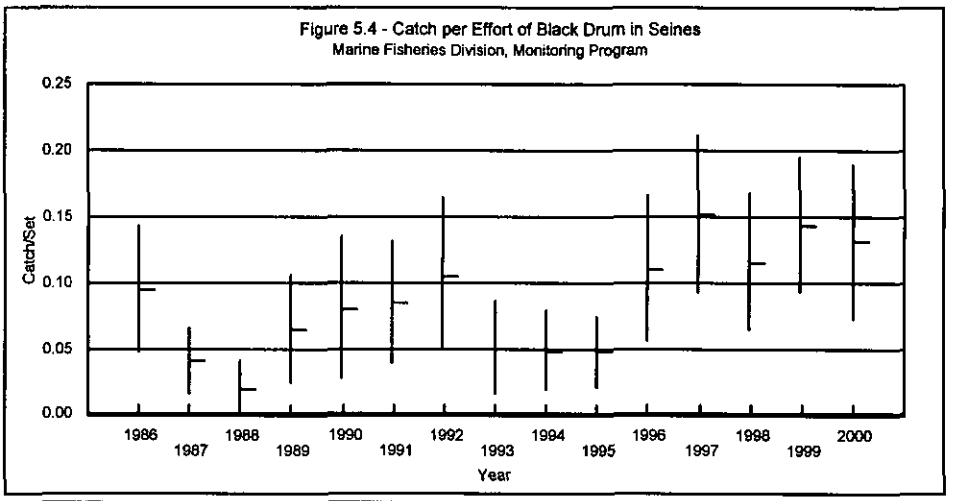


Figure 5.4 - Catch per Effort of Black Drum in Seines
Marine Fisheries Division, Monitoring Program
Catch/Set
0.25
0.20
0.15
0.10
0.05
0.00
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
Year

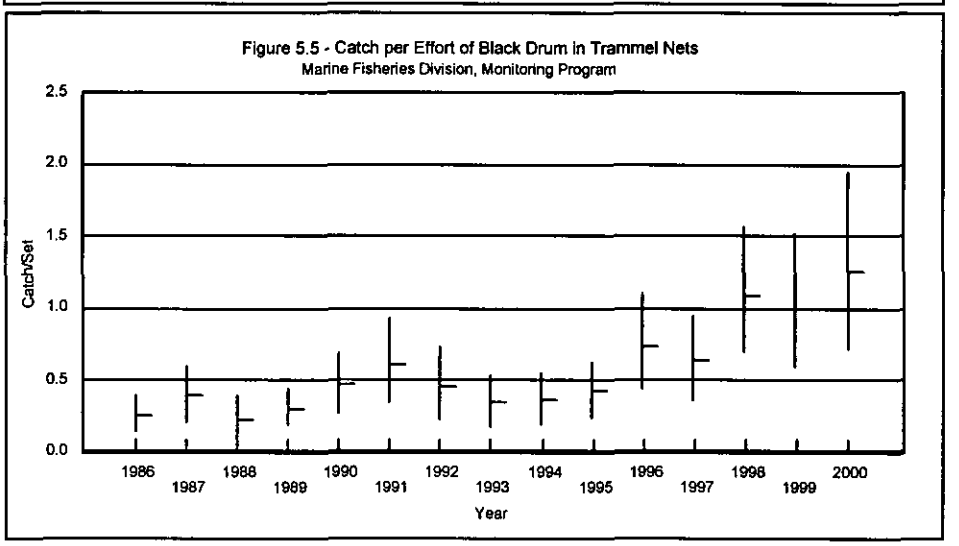


Figure 5.5 - Catch per Effort of Black Drum in Trammel Nets
Marine Fisheries Division, Monitoring Program
Catch/Set
2.5
2.0
1.5
1.0
0.5
0.0
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
Year

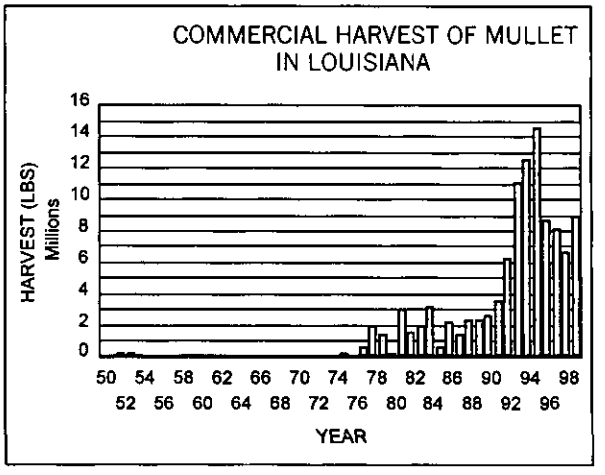
STRIPED MULLET
SUMMARY OF CHANGES FROM 2000 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2000 assessment conducted for striped mullet.

- There is no substantive changes in methods from the 2000 assessment.

2001 DOCUMENT HIGHLIGHTS

- 1999 commercial landings of 8.9 million was the highest harvest since regulations implemented in 1995.



- The results of YPR analysis indicate that if M=0.3 (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating above $F_{0.1}$ and F_{MAX} with yield of 97% to 99% of maximum, and SPR at 31% to 34%. An M of 0.6 would indicate a more lightly fished stock with yield being 77% to 86% of maximum and with SPR being 62% to 68%.

- It should be noted that the method used in this assessment to determine the status of the stock, reflected in the estimates of disappearance, is not immediately sensitive to changes in regulations. It takes several years, depending on the longevity of the species, before the impact of changes in fishing mortality are realized.

- Legislation allowing the use of hoop nets in freshwater areas for taking mullet was legalized in 1999. The law required that no leads be used on the hoop nets, no harvest or possess of mullet from between the hours of official sunset and official sunrise, and mullet caught in the freshwater areas of the state could not be possessed by commercial fishermen in the saltwater areas of the state. Preliminary landings data through the Louisiana's Trip Ticket Program for the year 2000 indicate that for the months January through September approximately 18,000 pounds of mullet were harvested by hoop nets. If preliminary landings represent what can be expected to be harvested from hoop nets each year, hoop net landings will have little impact on fishing mortality rates and therefore SPR.

STRIPED MULLET
5.0 STOCK ASSESSMENT

This assessment uses yield per recruit (YPR), spawning potential ratio (SPR) and catch curve analyses to estimate the impact of current fishing pressure on the potential yield and the spawning potential of the Louisiana striped mullet stock. Estimates of YPR and SPR are based on knowledge of the growth of the fish, and on estimates of the natural mortality rate (M) and fishing pressure (F) on the stock. Catch curve analysis is used to estimate the disappearance rates (Z') from the fishery. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock. Therefore, this analysis uses growth rates for female mullet, and considers the effects of fishing on the female portion of the stock. The results of this type of assessment provide a generalized approach for estimating the impact of fishing on the spawning potential and the potential yield of the fish stock. As with any assessment, the results are subject to the limitation of the data from which they are derived. The present analysis should be used only as guidance until more comprehensive analyses, using additional data collected consistently over an extended time span, can be conducted.

The definition of the unit stock must be considered in the development of a stock assessment. While a unit stock is often defined as that portion of the population which is genetically similar, for our purpose in this stock assessment, the most applicable definition seems to be one which considers the unit stock as that portion of the stock which is either dependent on Louisiana waters, or which is available to Louisiana fishermen. We recognize that the geographic distribution implicit in this definition of unit stock is likely to be different from the genetically based definition, given the wide geographic distribution and offshore spawning grounds of the species (Mapes *et al.* 1998). We chose to use this definition because it provides the best picture of the Louisiana fishery, and we do not have information with which to quantitatively define fishing mortality on a regional basis. Information from tagging studies along the west coast of Florida (Mahmoudi, 1991) indicate that once recruited to an estuary, mullet have a strong tendency to return to that estuary after spawning offshore. If this tendency is also expressed in Louisiana, then fishing mortality rates in one area of the state would primarily affect the abundance of the adult population in that area, and not in other areas, unless fishing mortality rates over the entire spawning pool were high enough to affect recruitment on a wide scale.

Estimates of fishing mortality are derived with the knowledge that the existing fishery is not evenly distributed over the entire state, but concentrated in the southeastern region, and mainly east of the Mississippi River (over 80% of the harvest is typically from that region). The analysis must assume that either the distribution of the fishery does not change, or that all fish in the state are equally available to the fishery for predictive yield calculations to be reasonably accurate. Without knowledge of movement of adult mullet over the entire year, it is difficult to infer how much of the population is actually exposed to the fishery. Only that portion exposed to the fishery is described

here. In order to reduce problems associated with variable growth rates and variable fishing pressures across the state, information for this assessment was limited to that collected from the easternmost part of the state (East of 90°W longitude).

For purposes of this assessment, we did not consider the effects of recreational harvest on the stock. The best information available at this time indicates that recreational harvest is relatively light, typically less than 200,000 pounds of fish per year (National Marine Fisheries Service, Marine Recreational Fishing Statistics Survey, 1981-1999). Based on the sparse length frequency distribution of surveyed fish, most of the recreational harvest is at a size prior to entry into the commercial fishery. The available data suggest that inclusion of recreational harvest data would not have any appreciable effect on the analyses we used (Table 5.1).

This assessment uses a fishing year beginning in February of one year and running through January of the following year for analysis of fishery-dependent information. Thus, the 1998 fishing year, as defined for this report, consists of February 1998 through January 1999. This is to accommodate the existing season for commercial harvest, which runs from the 3rd Monday in October until the 3rd Monday of the following January. Harvest values are presented for each calendar year rather than fishing year for consistency with other reports.

5.1 Growth and Fecundity

Thompson *et al.* (1991) described growth of striped mullet from Louisiana waters. They found significant differences in growth rates between sexes of mullet, and in growth rates from different parts of the state. For this assessment, a von Bertalanffy growth equation was developed from aged samples of female striped mullet from East of the Mississippi River provided by Thompson (pers. comm.). Growth rates from this area were used since this area of the state provides the majority of the harvest. We reanalyzed these data, combining them with juveniles assigned to age 0 by length frequency analysis from Louisiana Department of Wildlife and Fisheries' (LDWF) fishery-independent seine samples (Mapes *et al.* 1998, Figure 2.1). These data were used to estimate a three-parameter von Bertalanffy growth equation:

$$L_t = L_\infty * (1-e^{(-k(t-t_0)})$$

where L_t is the length at age (t) in years, L_∞ is the maximum length, k is a parameter describing the rate of growth, and t_0 is the intercept of the function on the time axis. The function was estimated using nonlinear approximation procedure (SAS, 1987). The parameters derived from this method were: L_∞=453.9, k=0.332, t_0=-0.05. These parameters were used in some methods of estimating natural mortality, and for yield estimation.

Samples were assigned ages through use of an age-length key developed from otolith aging of fish by Thompson (unpublished data) and LDWF's ongoing aging study. The age-length key categorized fish in increments of one-inch (25.4 mm) total length. Fish with only fork length measurements available were converted to total length using the equation provided by Thompson *et al.* (1991) (TL=1.13*FL-3.40, r^2=.995). Only data from female mullet was included (males, immature fish, and fish where sex was not recorded were all deleted). Data from purse seine samples from Mississippi waters, and from mullet in the Sabine (LA) Refuge impoundment were deleted from the LSU dataset, as the length/age relationships for these fish are expected to differ from the fish harvested in the ongoing Louisiana fishery. Most fishery-independent collections were deleted from the dataset for the same reason. However, the age distribution for 11-inch fish was derived from fishery-independent samples since no fishery-dependent ages were available for that size class. This size class represented less than one percent of the total harvest, so any error due to misassignment of ages should have minimal impact on the assessment. In all 3,580 female mullet were used in the development of the age-length-key (Table 5.2).

As noted earlier, the fishery is concentrated in the area east of the Mississippi River, and in the Mississippi River delta. Examination of fishery-dependent age-length keys and length-frequency samples from different areas of the state demonstrated substantial differences in length-frequency and in age-at-length between areas. Therefore only samples taken East of 90°W longitude were included in this assessment. Exclusion of the samples from the remainder of the state should provide a more accurate assessment of the potential yield of this area, where the majority of the fishery operates. Spawning potential ratio (SPR) estimates specifically calculated by this method would not be valid for the state as a whole, but should be more accurate representation of the status of the fished portion of the population in this region.

Fecundity is estimated from the length/fecundity relationship of Thompson *et al.* (1991) where:

$$\text{Fecundity}=5.6\text{x}10^{-3}(\text{FL})^{3.18}$$

Fish were assumed to be sexually mature at age 2.

5.2 Natural Mortality

There was no change in the techniques used or the input parameters for estimation of natural mortality for striped mullet since the development of the 1997 and 1998 reports. The various estimates and the citation describing the methodology used to derive that estimate are listed below.

Citation	Input parameters	Natural Mortality estimate
Pauly (1980)	k =0.332 L_∞ =453.9 $\bar{x}$ water temperature (°C)=22.7	$M_{schooling\ fish}$ (est.*0.8)=0.56 $M_{clupeids}$ (est.*0.6)=0.42
Hoenig (1983)	$Age_{(max)}$=10	M=0.42
Alagaraja (1984)	99% of fish die by Age 10 99.9 % of fish die by Age 10	M1%=0.46 M0.1%=0.69
Beverton and Holt (1959)	1.5 to 2.5 von Bertalanffy growth parameter (k), k=0.332	M=0.50-0.83

Two estimates of natural mortality (M) are available for striped mullet in the existing literature. Pauly (1980) cites Ih-Hsiu (1970) as reporting an M of 0.31 for male striped mullet from Taiwan. Mahmoudi (1991) estimated M as 0.30 using tagging data from southwest Florida.

Some investigators (Restrepo *et al.* 1991, Helser *et al.* 1992) have attempted to use a range of estimates of M and incorporate variation within this range as a variable in their analyses of other fish species. However, the selection of the range to be used, and the distribution of M estimates within that range remains arbitrary. We have chosen, rather, to select several point estimates of M, and to present the results of changes in the estimate. We have presented estimates based on M values of 0.3, 0.4, 0.5, and 0.6. This provides a feeling for the differences resulting from various estimates of M, without implying any additional precision.

In this report, an M of 0.3 is the most conservative estimate of natural mortality. This estimate may be low, based on the lack of mullet older than 10 years in the Western part of Louisiana, though there was no established mullet fishery in that area when the samples were taken. Using a low value of M results in higher estimates of F in the analysis. If the actual value is above estimates used here, estimates of fishing mortality from catch curve analysis will be lower than estimated here. Additionally estimates of spawning potential ratio at any level of fishing mortality would also be increased, and potential yield will be higher than estimated with that value. A low estimate of M would also increase the harvest age structure required to maximize yield, which could influence proposed size or gear regulations.

5.3 Disappearance Rates and Fishing Mortality

It must be recognized that any estimate of disappearance (Z') from the fishery includes both the total mortality while the fish is exposed to the fishery, and the availability of the fish to the gear. Availability as used here includes both changes in distribution or behavior of the fish that might change effectiveness of the fishery (e.g. migration, food preference, etc.), and size or other selectivity of the gear or fishery. The predominant gear in the Louisiana mullet fishery at the present time is a 3½ -4 inch stretch gill net, though some larger mesh sizes are occasionally used (see Mapes *et al.*, 1998). Gill nets are size selective for mullet, therefore estimates of disappearance likely reflect fishing mortality confounded by some degree of gear selectivity. For the present analysis, no estimation of gear selectivity or availability to capture was available for fish past full recruitment. Selectivity of younger fish is estimated from the method presented in Sparre and Venema (1992), using a linearized catch curve to determine the selectivity of fish not fully recruited to the fishery. The ratio of the observed catches to the expected catches at each age is the relative probability of capture or selectivity of the fishery. Selectivities for ages up to full age-at-recruitment were used to describe the relative fishing mortality to that point; for ages at or above full recruitment, selectivities are usually assumed to be 1 (100% selected).

Length frequency data from the mullet fishery, derived from Trip Intercept Program (TIP) sampling (LDWF unpubl. data), are available for the fishing years 1994-1999. These samples were aged, using an age-length key (Table 5.2). The relative selectivities for each age are as follows:

Ages	Relative selectivity
0	0
1	0.0011
2	0.0372
3	0.2616
4	0.7780
5 and over	1.0

Disappearance rates (Z') were derived by regression of the descending arm of the catch curve (Figures 5.1A-E). The resulting estimates of Z' are provided in table 5.3.

These estimates of Z' and relative selectivity could be confounded by variable sizes of cohorts within the fishery. Variation in cohort size could skew the estimate of Z' in either a positive or negative direction, depending on the distribution of the various cohorts within the fishery. Greater recruitment in the older year classes would provide a lower estimate of Z', while if in younger ages, would provide an overestimate of the true value of Z. This uncertainty can only be addressed by use

of several years of information on the fishery, and using estimates of Z based on specific cohorts rather than using annual estimates, that run across several cohorts.

5.4 Yield per Recruit

Yield per recruit (YPR) analysis provides basic information about the dynamics of a fish stock by estimating the impact of mortality rates on yield and spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential. The present yield per recruit (YPR) analysis is based on several assumptions. A fish is assumed to consistently recruit to any given fishery at a given age; that is, selectivity by age does not change over time. Partial recruitment of fish is estimated from the relative abundance of age 1 through age 4 fish in the TIP samples compared to age 5 and over fish, which are fully recruited. Once the fish are fully recruited to the fishery, fishing pressure is assumed to be at a constant rate. The present YPR analysis does not take into account any variation in growth rate or other factors which may affect the results. Use of YPR analysis requires:

1) information on natural and fishing mortality rates,
2) knowledge of the growth parameters of the fish.

Methods used for estimation of natural mortality (M) and fishing mortality (F) rates in this analysis are presented in Sections 5.2 and 5.3 above. The existing mullet fishery is mainly a roe fishery, targeting female fish (Thompson, 1989). Therefore, we have used the growth parameters for female mullet to calculate yield per recruit.

5.5 Conservation Standard

Conservation standards are based on one of a number of biological measures of the dynamics of fish stocks, that are intended to protect the viability of that stock for future generations. These standards have historically been based on different measures of the dynamics of fish stocks, depending on the data available, the needs of fishery and of the resource. Conservation standards should be separated into two types: a conservation threshold which is entirely biologically based, and a conservation target which considers biological measures modified by relevant social, economic, and ecological factors.

Conservation "thresholds" are intended to provide a biological baseline for harvest of a fish stock based on stock recruit relationships, or other biological parameters specific to the stock, if possible. This baseline standard, below which the stock should not be allowed to go, has been described as a "threshold" by some researchers, and has also been referred to as an "overfishing level" (GMFMC 1995). Beyond this "threshold", management "targets" may be set, which provide for other management goals in the fishery. Such goals may be in terms of yield in weight, yield in

numbers of fish, catch rate per effort, harvest rate per effort, employment, profit, or some other goal. These targets must be set at a fishing rate below the "threshold" in order to ensure that the biological integrity of the stock is not unduly compromised by fishing.

Recently, use of a stock measure, spawning stock biomass per recruit (SSBR) or spawning potential ratio (SPR) has become widely used. This measure compares the estimated female spawning biomass of the stock that survive fishing with the estimated biomass of the stock under unfished conditions. The analysis does not take into account any density-dependent relationships due to the changes in the size of the fished stock. Using the Spawning Potential Ratio (SPR) concept as developed by Gabriel et al. (1984) and refined by Goodyear (1991), a "threshold" value can be defined that provides a minimum spawning stock biomass (or egg production) per recruit, below which existing data cannot evaluate impacts to future recruitment, and below which the fishery should not be allowed to operate.

Ideally, "threshold" levels should be evaluated from information on the stock in question. However, the information base necessary to adequately describe this level is often not available. In such cases, it has been recommended by Goodyear (1989) that a spawning stock biomass per recruit (SSBR) or SPR of 20% be used as a "threshold" in absence of sufficient evidence to provide a standard specific to the stock in question. This standard is also based on work on North Atlantic groundfisheries (Gabriel et al. 1984, Gabriel, 1985). A SSBR of 35% has been recommended for Spanish mackerel, and 20% for king mackerel (GMFMC 1990, 1995). A SSBR of 8-13% has been demonstrated to be sufficient for Gulf menhaden (Vaughan 1987). In prior analyses of the Louisiana spotted seatrout fisheries (LDWF 1991), we recommended an SPR of 15% after analysis of several years of available data. Mace and Sissenwine (1993) examined 90 stocks of 27 species, and recommended that 30% SPR be maintained when there is no other basis for estimating the replacement level. That level is sufficient for 80% of the stocks considered by those authors. They also noted that 30% may be overly conservative for an "average" stock. The average replacement %SPR for the stocks they considered was 18.7% while the most resilient quarter of the stocks considered required a maximum FREP of 8.6% SPR. Three-quarters of the stocks required a maximum FREP of 27.1% SPR. In the prior assessment of striped mullet (Shepard et al., 1992), a SPR of 20% was recommended as the conservation standard for the Louisiana fishery. This standard was considered, rather than 30% SPR, due to several factors: the fishery is mainly prosecuted on the stocks of mullet east of the Mississippi River, and the estimate of SPR is based on only the fished stocks. The relatively unfished stocks to the west of the Mississippi River are only minimally considered in the assessment, with the result that the SPR ratios are underestimated.

Sufficient information is not available to directly estimate a conservation threshold for striped mullet in Louisiana. However, the conservation target of 30% SPR established by Act 1316 of the 1995 Regular Session of the Louisiana Legislature for black drum sheepshead, southern flounder and

striped mullet appear to be adequate to maintain the striped mullet stock and prevent recruitment overfishing.

The use of any measure of health of a fish stock as a perfect index is arguable. Intuitively it seems more logical that growth overfishing would occur at a much lower fishing rate than would threaten recruitment. However, Mace and Sissenwine (1993) provide information to suggest that some stocks may have reduced levels of recruitment at levels of fishing that would not reduce yield per recruit. The preferable position for making recommendations on appropriate levels of fishing for a stock is to base those recommendations on actual measures of spawning stock and recruitment for that species, in the same fishery. This requires a base of information on that fishery that requires monitoring of both the stock and the fishery over a variety of conditions. Without this information, inappropriate conservation standards may either underestimate or overestimate the potential of the fishery. If the potential is underestimated, the society loses the economic and social benefits of the harvest. If the potential is overestimated, the society also loses the benefits of a sustainable fishery, which must at least go through some period of rebuilding, when effort must be reduced from the non-sustainable levels (Hilborn and Walters, 1993). Some researchers have speculated that over-harvest of some stocks may lead to their replacement in the ecosystem by other, often less preferred stocks. The frequency of such an occurrence is unknown, and the cause of shifts in species dominance in an ecosystem may be difficult to ascertain, even after the fact. Such a shift does seem to have occurred over time in the Grand Banks area, where prolonged, intense harvest of cod and haddock have been implicated in gradual increases in skate and spiny dogfish populations (CUD - NEFSC 1993).

5.6 Status of the Stock

The trends in harvest for striped mullet in the Louisiana fishery have been reviewed by Mapes *et al.* (1998). Commercial landings prior to 1991 was obtained from NMFS's General Canvass Landing Program, from 1991 through 1998 landings was collected through the LDWF's Monthly Dealer Reports and from 1999 to present LDWF's Commercial Reporting Requirement "Trip Tickets" program is utilized to gather this type of data. Recreational landings was obtained through the NMFS's Marine Recreational Fishery Statistics Survey. Harvest increased in the early 1990's, as the commercial roe fishery continued to develop (Figure 5.2). Harvest declined after 1995 as a direct result of regulations implemented August, 1995 eliminating the harvest of mullet outside of the period between the third Monday in October through the middle of the following January. Regulations also outlawed fishing for mullet at night, on weekends, in freshwater areas, and using gear other than strike gill nets. Legislation allowing the use of hoop nets in freshwater areas for taking mullet was legalized in 1999. The law required that no leads be used on the hoop nets, no harvest or possess of mullet from between the hours of official sunset and official sunrise, and mullet caught in the freshwater areas of the state could not be possessed by commercial fishermen in the saltwater areas of the state.

Annual recruitment of mullet has been evaluated from fishery-independent seine and experimental gill net samples taken statewide since 1986. Catch/effort information are compiled for January through May of each year, and the abundance is measured as ln(catch/effort)+1. Seine catches of fish larger than young-of-the-year (>70 mm) are removed from the calculation of abundance indices (Figure 5.3). Gill net data from 2", 2.5", and 3" (5.08, 6.35, and 7.62 cm.) stretch mesh panels are used to provide relative abundance indices of mullet prior to harvest by legal saltwater commercial gears (Figures 5.4A-D).

Seine CPUE indices show higher mean catches of young-of-the-year (YOY) in the last five years examined (1996-2000); however, there is little statistical difference between the estimates. In the last four years examined only 1991 was significantly lower at the 95% confidence limit. There appears to be no long term downward trend in YOY indices for the years examined. Gill net CPUE indices seem to cycle throughout the period examined with no long term downward trend. There is some question however, after reviewing the relatively consistent annual pattern of different mesh sizes, whether the gill net samples actually measure relative abundance or simply measure annual availability to the sampling gear. One would expect to find more annual variation between mesh sizes as fish grew and became increasingly available to the larger mesh size. The three mesh sizes, standardized to their mean, are presented in figure 5.4D. There does seem to be an annual pattern found between the mesh sizes with the last four years being relatively lower than previous years.

The results of YPR analysis indicate that if M=0.3 (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating above $F_{0.1}$ and F_{MAX} with yield of 97% to 99% of maximum, and SPR at 31% to 34%. An M of 0.6 would indicate a more lightly fished stock with yield being 77% to 86% of maximum and with SPR being 62% to 68% (Table 5.4).

In all of these analyses, assumptions listed in prior sections of this report have a strong influence in the results. If M is actually near or above the upper end of the range considered here then increases in yield per recruit would be possible, and SPR would be above the minimum estimated values. Estimates of potential yield presented here do not account at all for potential extension of the fishery into areas of the state that do not now have a significant fishery. Any substantive change in geographic distribution of the fishery could substantially change the overall harvest levels.

Based on this generalized assessment, for all natural mortality rates examined, if fishing mortality rates continue at the current levels, then striped mullet are not being harvested at a rate that would drive the stock below the target SPR of 30% established by the Louisiana Legislature.

Legislation allowing the use of hoop nets in freshwater areas for taking mullet was legalized in 1999. Preliminary landings data through the Louisiana's Trip Ticket Program for the year 2000 indicate that for the months January through September approximately 18,000 pounds of mullet were harvested by hoop nets. If preliminary landings represent what can be expected to be harvested from hoop nets each year, hoop net landings will have little impact on fishing mortality rates and therefore SPR.

5.7 Research and Data Needs

As with any analysis, the accuracy of the assessment is dependent on the accuracy of the information on which it is based. The present analyses, along with the biological data presented by Mapes *et al.* (1998) identify several areas for research to address.

Estimates of natural mortality used in the present assessment are derived from general literature sources, and show wide variation. This variation reduces the potential of the present assessment to provide a precise prediction of the yield potential of the stock, and also reduces the confidence level of the present estimate of SPR. A more precise estimate of natural mortality, based on Louisiana data, would assist in both of these problems.

Definition of sub-populations based on migratory patterns would help define exploitation rates within different areas of the state. This may help managers develop area-specific management to optimize yield from a given stock, while protecting the stock from overharvest.

Recruitment mechanisms are poorly defined for the species. Mullet are recorded to spawn beyond the shelf break, in the central Gulf of Mexico. No genetically distinct stocks have been identified within the Gulf. However, lack of genetic distinctness does not necessarily mean that stocks are homogeneously mixed by spawning and recruitment mechanisms, only that populations are not so removed from each other that gene structure is identifiably different. Better understanding of recruitment mechanisms, merged with measurement of oceanographic or other driving forces could help in understanding the sub-genetic distinctiveness of mullet populations from different regions of the state of the Gulf of Mexico.

Factors that influence the year-class strength of mullet are essentially unknown. Investigation of these factors could help better define causes of inter-annual variation in abundance, and perhaps also the underlying stock-recruit relationships in the species.

The relationship between wetlands losses or modifications and the continuation of fishery production within the state has been discussed by many authors. However, this relationship is likely to be different for any of a suite of different species. Understanding of this relationship for mullet should be an ongoing priority.

In the presence of changing regulations, fishery-dependent information is not a reliable source of the data necessary to assess the status of a fish stock. However, such data is necessary to measure the effects of fishing on that stock. Consistent fishery-dependent and fishery- independent data sources, in a comprehensive monitoring plan, are essential to understanding the status of fishery stocks, and to identifying causes of changes in stock abundance. Present programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

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Table 5.1. Annual commercial and recreational harvest of mullet from Louisiana waters, expressed in pounds. Commercial harvest values from dealer landings reports, recreational harvest from NMFS MRFSS estimates of fish landed plus those discarded dead.

Year	Commercial Harvest (lbs.)	Recreational Harvest (lbs.)	Total Harvest (lbs.)	%Commercial
81	3,051,461	564	3,052,025	99.98%
82	1,533,452	16,546	1,549,998	98.93%
83	1,886,654	0	1,886,654	100.00%
84	3,157,215	2,793	3,160,008	99.91%
85	579,297	7,505	586,802	98.72%
86	2,277,713	52,921	2,330,634	97.73%
87	1,439,425	0	1,439,425	100.00%
88	2,367,106	105,878	2,472,984	95.72%
89	2,413,768	75,287	2,489,055	96.98%
90	2,645,927	296,113	2,942,040	89.94%
91	3,563,137	26,303	3,589,440	99.27%
92	6,214,532	121,274	6,335,806	98.09%
93	11,026,497	185,015	11,211,512	98.35%
94	12,560,261	97,511	12,657,772	99.23%
95	14,545,610	89,551	14,635,161	99.39%
96	8,658,881	217,807	8,876,688	97.55%
97	8,082,591	127,594	8,824,069	98.55%
98	6,675,574	15,459	6,691,033	99.77%
99	8,953,373	48,767	9,002,140	99.46%

Table 5.2 - Age-at-Length distribution of female striped mullet used in age-length key development.

Length (inches)	Age										Total
	1	2	3	4	5	6	7	8	9	10	
10	18	67	7	1			1				94
11	2	76	52	12	3						145
12	9	105	153	87	18	5	1				378
13	12	110	251	195	79	22	2	3			674
14	12	74	200	225	131	34	9	3			688
15	4	46	137	151	89	41	10	9	1	1	489
16	1	49	116	122	67	26	8	1	1		391
17		30	100	111	55	18	4	2	1		321
18	1	6	47	71	34	11	5	1	1		177
19	1	2	16	47	32	7	4				109
20		1	3	15	23	14	6				62
21			1	3	4	4	2		2	1	17
22				2	3	4	5	1			15
23			1		3	2	3				9
24					5	3	3				11
All	60	566	1084	1042	546	191	63	20	6	2	3580

Table 5.3 Regression Output from the Estimation of Disappearance Rates

1994

Regression Output:	
Constant	18.5503
Std Err of Y Est	0.4624425
R Squared	0.9702872
No. of Observations	8
Degrees of Freedom	6
X Coefficient(s)	-0.99882
Std Err of Coef.	0.0713564

1995

Regression Output:	
Constant	19.224847
Std Err of Y Est	0.2586424
R Squared	0.989781
No. of Observations	7
Degrees of Freedom	5
X Coefficient(s)	-1.07565
Std Err of Coef.	0.0488788

1996

Regression Output:	
Constant	18.566267
Std Err of Y Est	0.156
R Squared	0.9959516
No. of Observations	7
Degrees of Freedom	5
X Coefficient(s)	-1.033969
Std Err of Coef.	0.0294812

1997

Regression Output:	
Constant	18.432739
Std Err of Y Est	0.1661209
R Squared	0.9953224
No. of Observations	7
Degrees of Freedom	5
X Coefficient(s)	-1.024001
Std Err of Coef.	0.0313939

1998

Regression Output:	
Constant	18.855665
Std Err of Y Est	0.4101676
R Squared	0.9778915
No. of Observations	7
Degrees of Freedom	5
X Coefficient(s)	-1.152746
Std Err of Coef.	0.0775144

1999

Regression Output:	
Constant	18.723115
Std Err of Y Est	0.314624
R Squared	0.9849
No. of Observations	7
Degrees of Freedom	5
X Coefficient(s)	-1.073755
Std Err of Coef.	0.0594584

Table 5.4 - Results of Yield per Recruit and SPR Analysis for Mullet

M=0.3

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max =	0.5758	85.6013	432,921	38.24%	100.00%	
F0.1 =	0.3020	78.9656	595,581	52.61%	92.25%	
F20% =	2.0131	70.0656	226,433	20.00%	81.85%	Benchmarks
F30% =	0.9119	82.7357	339,650	30.00%	96.65%	
1994 =	0.6988	85.0543	390,946	34.53%	99.36%	
1995 =	0.7757	84.3400	369,952	32.68%	98.53%	
1996 =	0.7340	84.7522	380,926	33.65%	99.01%	Estimate
1997 =	0.7240	84.8426	383,693	33.89%	99.11%	
1998 =	0.8527	83.4676	351,873	31.08%	97.51%	
1999 =	0.7738	84.3598	370,431	32.72%	98.55%	

M=0.4

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max =	0.7988	50.3253	245,293	40.68%	100.00%	
F0.1 =	0.3822	45.8515	335,236	55.59%	91.11%	
F20% =	3.8965	40.3205	120,602	20.00%	80.12%	Benchmarks
F30% =	1.5759	47.5398	180,903	30.00%	94.47%	
1994 =	0.5988	49.6615	278,442	46.18%	98.68%	
1995 =	0.6757	50.1055	264,163	43.81%	99.56%	
1996 =	0.6340	49.9019	271,629	45.05%	99.16%	Estimate
1997 =	0.6240	49.8407	273,510	45.36%	99.04%	
1998 =	0.7527	50.2982	251,856	41.77%	99.95%	
1999 =	0.6738	50.0979	264,489	43.86%	99.55%	

M=0.5

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max =	1.1147	30.9974	147,696	42.96%	100.00%	
F0.1 =	0.4762	27.8648	202,144	58.80%	89.89%	
F20% =	7.0888	24.9089	68,757	20.00%	80.36%	Benchmarks
F30% =	2.7515	28.9557	103,136	30.00%	93.41%	
1994 =	0.4988	28.2032	198,980	57.88%	90.99%	
1995 =	0.5757	29.1325	189,265	55.05%	93.98%	
1996 =	0.5340	28.6675	194,346	56.53%	92.48%	Estimate
1997 =	0.5240	28.5430	195,625	56.90%	92.08%	
1998 =	0.6527	29.7944	180,884	52.62%	96.12%	
1999 =	0.5738	29.1132	189,487	55.12%	93.92%	

M=0.6

	F - Ratio	YPR	SPR	%SPR	%YPR	
F-max =	1.6415	19.8569	91,314	44.09%	100.00%	
F0.1 =	0.5853	17.5289	128,195	61.89%	88.28%	
F20% =	11.8316	16.1782	41,424	20.00%	81.47%	Benchmarks
F30% =	4.6199	18.7160	62,137	30.00%	94.25%	
1994 =	0.3988	15.3822	142,695	68.89%	77.47%	
1995 =	0.4757	16.4377	136,084	65.70%	82.78%	
1996 =	0.4340	15.9010	139,542	67.37%	80.08%	Estimate
1997 =	0.4240	15.7604	140,413	67.79%	79.37%	
1998 =	0.5527	17.2466	130,374	62.95%	86.85%	
1999 =	0.4738	16.4150	136,235	65.78%	82.67%	

Figure 5.1A - Disappearance Rate for Mullet 1994

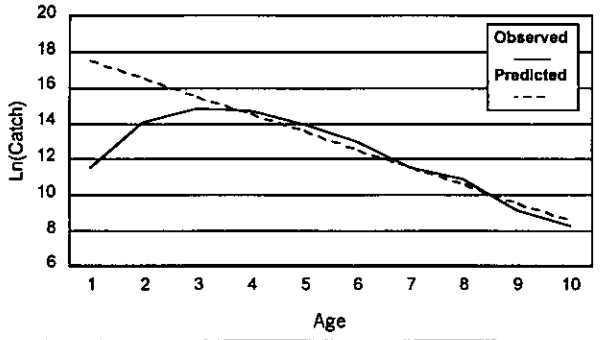


Figure 5.1B - Disappearance Rate for Mullet 1995

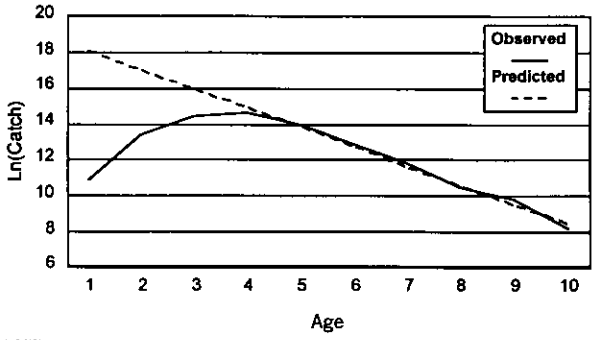


Figure 5.1C - Disappearance Rate for Mullet 1996

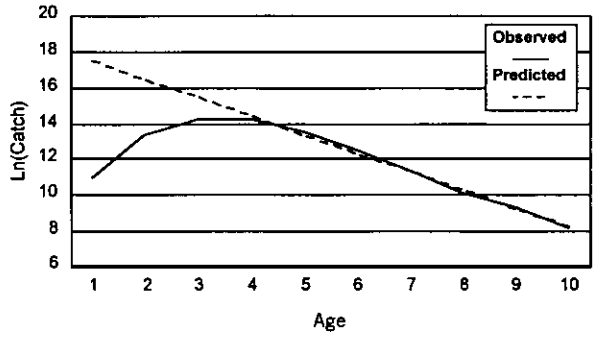


Figure 5.1D - Disappearance Rate for Mullet 1997

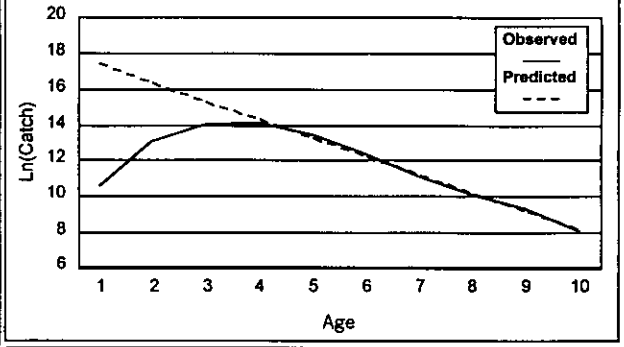


Figure 5.1E - Disappearance Rate for Mullet 1998

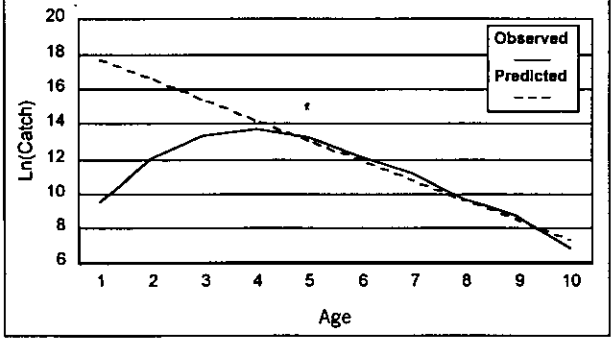


Figure 5.1F - Disappearance Rate for Mullet 1999

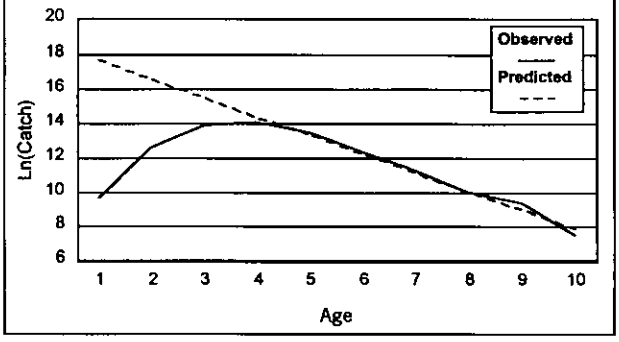


Figure 5.2 - Commercial Harvest of Mullet In Louisiana

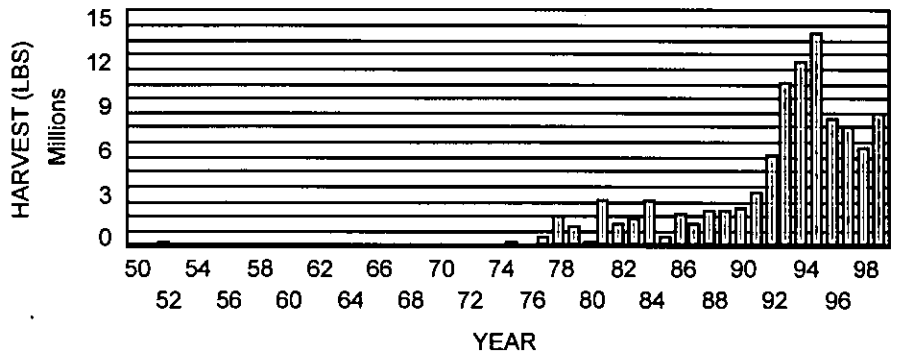


Figure 5.3 - Catch per Effort of Striped Mullet in Seines
Marine Fisheries Division, Monitoring Program (January - May)

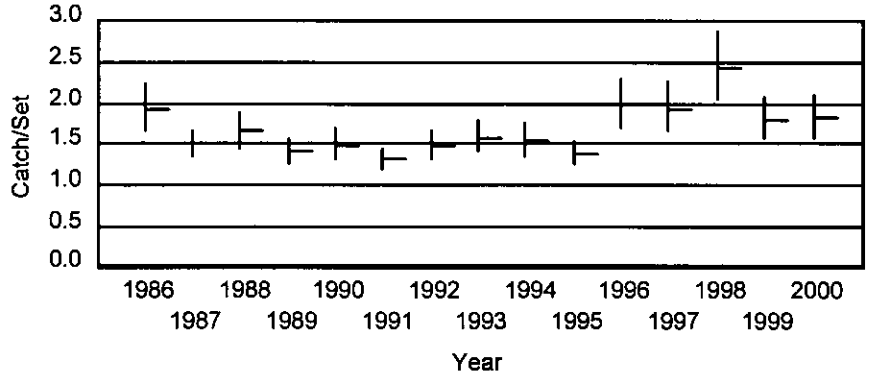


Figure 5.4A - Catch per Effort of Striped Mullet in 2" Stretch Gillnets
Marine Fisheries Division, Monitoring Program

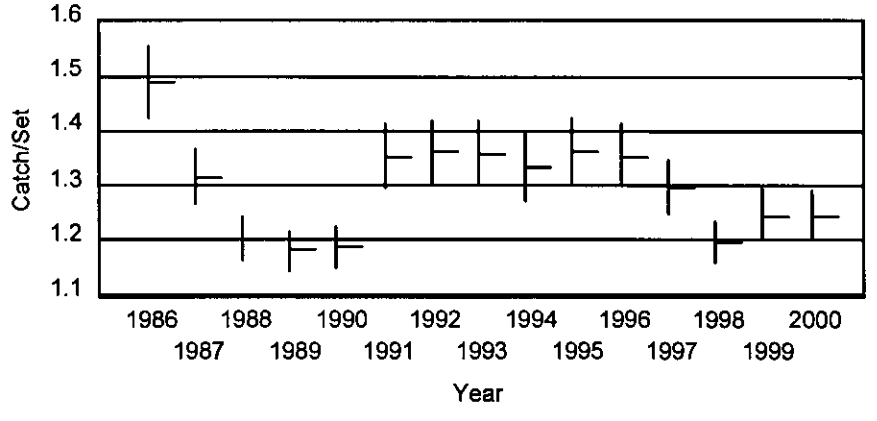


Figure 5.4B - Catch per Effort of Striped Mullet in 2.5" Stretch Gillnets
Marine Fisheries Division, Monitoring Program

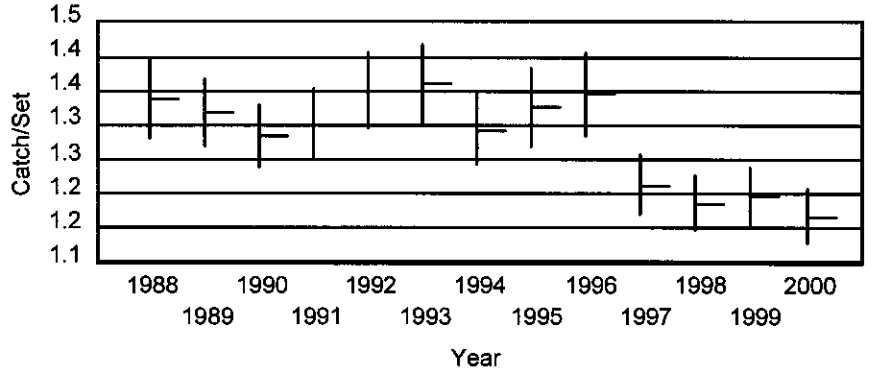


Figure 5.4C - Catch per Effort of Striped Mullet in 3" Stretch Gillnets
Marine Fisheries Division, Monitoring Program

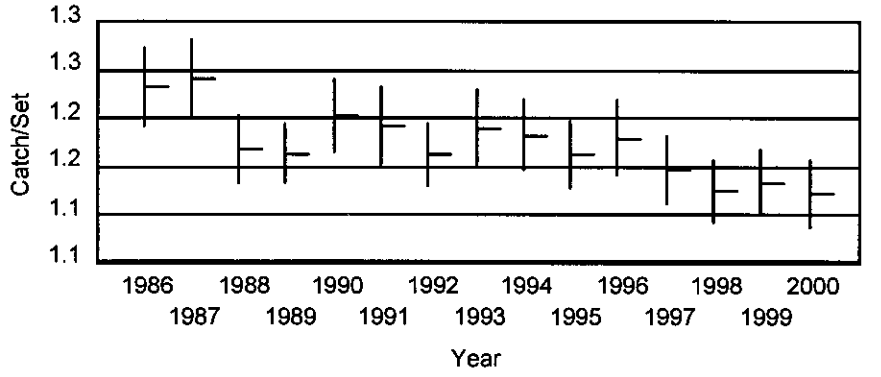
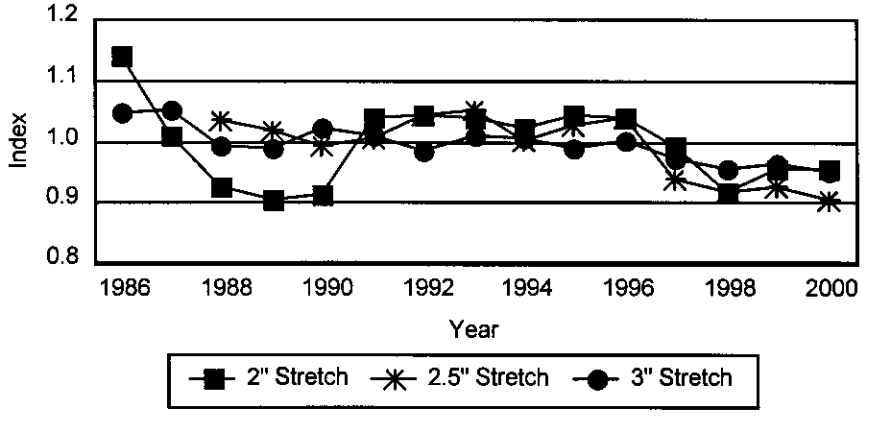


Figure 5.4D - Standardized CPUE of Striped Mullet in Gillnets
Marine Fisheries Division, Monitoring Program



SOUTHERN FLOUNDER
SUMMARY OF CHANGES FROM 2000 ASSESSMENT

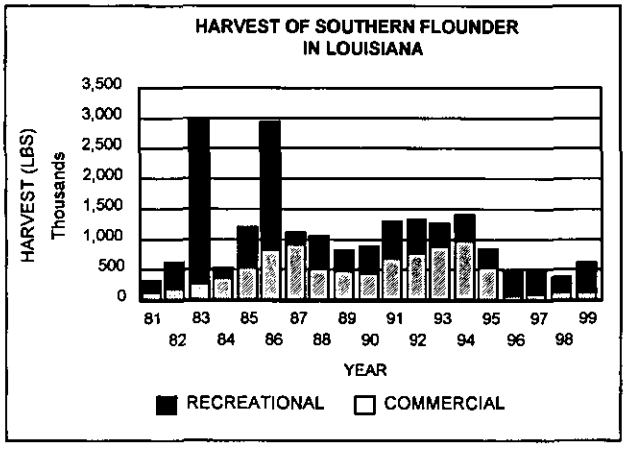
This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2000 assessment conducted for southern flounder.

- There were no substantive changes to the flounder assessment in 2001.

2001 DOCUMENT HIGHLIGHTS

- 1999 combined commercial and recreational harvest of 638,613 pounds was an increase from the last four years, but lower than landings from the mid 1980's to mid 1990's.

- The results of YPR analysis indicate that for the years assessed (1994-1999) if M=0.5 (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating between $F_{0.1}$ and F_{MAX}, with yields of 93% to 95% of maximum and SPR at 28% to 30%. An M of 0.8 (the highest value within the range examined) would produce yields of 56% to 60% of maximum with SPR at 51% to 54%.



- It should be noted that the method used in this assessment to determine the status of the stock, reflected in the estimates of disappearance, is not immediately sensitive to changes in regulations. It takes several years, depending on the longevity of the species, before the impact of changes in fishing mortality are realized.

SOUTHERN FLOUNDER
5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR), Spawning Potential Ratio (SPR) and catch curve analyses to estimate the impact of fishing pressure on potential yield and the spawning potential of the southern flounder stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. Catch-curve analysis estimates disappearance rates (Z') from the fishery based on the relative abundance of each age class in the harvest. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female southern flounder are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Von Bertalanffy growth parameters were calculated for female southern flounder in Louisiana by using aged samples collected by Thompson (B. Thompson, Coastal Fisheries Institute, Louisiana State University, unpublished data) combined with juveniles assigned to age 0 (< 100 mm total length) by length frequency analysis from Louisiana Department of Wildlife and Fisheries (LDWF) fishery-independent trawl samples. From the combined data, a three-parameter von Bertalanffy growth equation was estimated using nonlinear approximation (SAS, 1987). The equation is as follows:

$$\text{Female } L_t = 509(1\text{-}e^{-0.8846(t-0.0954)})$$

where, L_t = length at age t. A plot of the data and predicted growth is provided in Figure 5.1. A length-weight regression for female southern flounder was derived using fish collected in Louisiana by Thompson (unpublished data) and the LDWF fishery-independent surveys. The resulting output of the SAS regression analysis is presented in Table 5.1. The length-weight regression used is as follows:

$$\log W = 3.18369 * \log L - 5.386116$$

where, W = body weight in grams, and L = total length in millimeters. A plot of the data and predicted weight-at-length is provided in Figure 5.2.

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically, natural mortality is estimated as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously. No direct measure of natural mortality for southern flounder is available; therefore, several established estimation procedures were used to derive an estimate. The procedures are presented below and are taken from Sparre and Venema (1992).

Pauly (1980) provides a method of estimating natural mortality from a set of parameters including the asymptotic length and growth rate of the fish, and the average water temperature of the environment. The growth parameters from the von Bertalanffy growth equation described in Section 5.1 and the mean annual water temperature, derived from readings from a set of four constant recorders located throughout the Barataria Bay system, were used in the calculation. The mean water temperature was 22.7°C for the period 1989 - 1992 (pers. comm., M. Kasprzak, 4/13/92). These values were incorporated into the length-based function of Pauly (1980):

$$\ln(M) = -0.0152 - 0.279 * \ln(L_\infty) + 0.6543 * \ln(K) + 0.463 * \ln(T).$$

where, ln(M) = natural log of natural mortality, $\ln(L_\infty)$ = natural log of the asymptotic length, ln(K) = natural log of the growth coefficient and ln(T) = natural log of the mean annual temperature in degrees Celsius.

Use of Louisiana data on growth and water temperature applied to Pauly's function results in a natural mortality estimate of M=0.68.

Alagaraja (1984) and Hoenig (1983) provide methods of estimating M based on the fish's lifespan or longevity with the assumption that M=Z. Longevity is also difficult to determine for exploited fish stocks, since the age distribution is usually truncated by fishing, but these methods are as useful as any in providing provisional estimates of natural mortality. The functions described by Alagaraja (1984) are:

$$M1\% = -\ln(0.01)/Tm$$
$$M0.1\% = -\ln(0.001)/Tm$$

where, M1% and M0.1% are the natural mortality rates corresponding to 99% and 99.9% mortality, respectively, given a fish's lifespan (Tm) in years. Female southern flounder in Louisiana have been aged to 7-years-old (Thompson, personal communication). If it is assumed that 99% or 99.9% of the fish die by age 7 then corresponding natural mortality rates for M1% and M0.1% would be 0.66 and 0.99 respectively.

The function described by Hoenig(1983) is :

$$\ln(Z) = 1.46 - 1.01 * \ln(Tm)$$

where, when M=Z, longevity (Tm) can be defined as the maximum survival age. If we assume that the maximum age of southern flounder has been truncated due to fishing from 9 to 7 years, the

resulting estimate of natural mortality, given Tm=7, would be 0.60. However, if our assumption is incorrect and the maximum age is 9 years then the estimate of natural mortality would be 0.47.

Another method of estimating M is described by Rikhter and Efanov (1976) and utilizes population age at sexual maturity. The function is:

$$M = 1.521/(Tm50\%^{0.720}) - 0.155$$

where, Tm50% is the age at which 50% of the population is mature. Age 1 is assumed to be the age at 50% maturity, based on the length at sexual maturity found by several researchers (Adkins et al. 1996), and results in an M of 1.37. However, if 50% maturity occurs at age 2 rather than age 1, the estimate of natural mortality would be 0.77.

In summary, the estimated rates of natural mortality for southern flounder in Louisiana using a variety of estimation procedures are as follow:

Pauly (1980)	0.68
Alagaraja (1984)	0.66 and 0.99
Hoenig (1983)	
1) Longevity 9 years	0.47
2) Longevity 7 years	0.60
Rikhter and Efanov (1976)	
1) 50% maturity age 1	1.37
2) 50% maturity age 2	0.77

5.3 Disappearance Rates and Fishing Mortality

The disappearance rate (Z') from the fishery comprises total mortality (natural + fishing) and some unknown rate of decreasing availability of the fish to the fishery. If the unknown rate of availability is small or nonexistent, then the disappearance rate will be a reasonable estimate of total mortality. However, if a large portion of the disappearance rate is due to fish not being available to the fishery, then assuming Z'=Z will overestimate the impact of fishing.

An annual catch-at-age matrix was developed by applying a single age-length-key to the years where length frequency data for the commercial and recreational fishery was available (1994 - 1998). Length frequency data were obtained from the Trip Interview Program (TIP) for the commercial fishery, and from the National Marine Fisheries Service's (NMFS) Marine Recreational Fishery Statistics Survey (MRFSS) for the recreational fishery. The data from both of the surveys did not distinguish between sexes, therefore we assumed for this assessment that all fish sampled were female (n=2,641). An age-length-key was developed from otolith aging of fish by Thompson (unpublished data) and LDWF's ongoing aging study. Twenty six hundred and forty one aged fish were used in the development of the age-length key (Table 5.2). To calculate disappearance rates, we regressed the natural log of the catch-at-age, beginning with the age at full recruitment to the fishery. This method assumes that recruitment is constant and the fishery is in equilibrium. A range of natural mortality rates were used in the assessment. After reviewing estimates of M in Section 5.2, we chose not to assume either method of estimating M was better than another, but rather to

present results for the range of estimates. The range of M was from 0.47 - 1.37. We chose to use an M of 0.5 - 0.8 that encompass most of the estimates. Disappearance rates were calculated from the combined commercial and recreational catch-at-age data by year for 1994 - 1998. The calculated disappearance rates ranged from 1.20 to 1.29 (Table 5.3 and Figures 5.3A-E).

Catch-at-age from the fishery for the years 1994-1999 was used to derive age-specific selectivities to be used in yield-per-recruit analysis. The method presented in Sparre and Venema (1992) was used to develop selectivities. This method uses a linearized catch curve to determine the selectivity of fish not yet fully recruited to the fishery. The ratio of the observed catches to the expected catches at each age is the probability of capture or selectivity of the fishery at age. This selection ogive is then regressed in the equation:

$$\ln(1 / S_t - 1) = T1 - T2 * t$$

where, S_t = the selectivity at age t, and T1 and T2 are constants corresponding to the intercept and slope of the regression. To develop theoretical or estimated selectivities at age the following equation is used:

$$S_t \text{ (estimate)} = 1 / (1 + \exp(T1 - T2 * t)$$

Selectivities for ages up to full age-at-recruitment were used to describe the relative fishing mortality to that point; for age at full recruitment and older, selectivities are assumed to be 1, or 100% selected. Selectivities are as follows:

age 0 = 0.0166
age 1 = 0.8619
ages 2 and older = 1.

5.4 Yield per Recruit

Yield-per-recruit and SPR analysis provide basic information on fish stock dynamics by estimating the impact of mortality on yield and the spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential.

The growth parameters described in Section 5.1, sexual maturity described in Section 5.2 and the age-specific selectivities described in Section 5.3 were incorporated into the yield-per-recruit and spawning potential analysis. Fecundity estimates were not available, therefore; mean weight at age was used in the estimation of spawning potential. Natural mortality rates of 0.5 to 0.8 by 0.1 were used in the analysis because they are on the lower end of the range of estimates and would provide the most conservative results. These rates are also used to describe the sensitivity of M on yield and spawning potential. The results are presented in Table 5.4, which contains estimates of F_{MAX} (fishing mortality rate that produces maximum yield), $F_{0.1}$ (fishing mortality rate representing 10% of the slope at the origin of a yield-per-recruit curve), $F_{20\%SPR}$ (fishing mortality that produces 20% SPR), $F_{30\%SPR}$ (fishing mortality that produces 30% SPR), and annual estimates of F from the disappearance rates calculated in Section 5.3.

5.5 Conservation Standards

Conservation standards are intended to protect the viability of a fish stock for future generations. These standards have historically been based on a number of biological measures of the dynamics of fish stocks, depending on the availability and adequacy of data. Conservation standards should be separated into two types: a conservation threshold which is entirely biologically based and, a conservation target which considers biological measures modified by relevant social, economic, and ecological factors. A conservation threshold is a biological baseline for the harvest of a fish stock and should not be exceeded. It is the highest level of fishing mortality that will ensure that recruitment overfishing will not occur. Beyond the conservation threshold, a conservation target may be set, providing for other management goals in the fishery. Such goals may include maximizing yield in weight or numbers of fish, economic benefits or profit, employment, or some other measurable goal. These targets should be set at a fishing mortality rate below that of the conservation threshold in order to ensure that the biological integrity of the stock is not damaged by fishing.

The spawning potential ratio (SPR) concept described by Goodyear (1989), is a species specific value expressed as the ratio of the spawning stock biomass (or egg production) per recruit (SSB/R) in a fished condition to the SSB/R in an unfished condition. The concept is based on the premise that below some level of SPR, recruitment will be reduced. Goodyear (1989), recommends that in the absence of sufficient data to provide a value specific to the stock in question an SPR of 20% be used as a threshold. Work on North Atlantic ground fisheries also resulted in the calculation of a threshold SPR of 20% (Gabriel et al. 1984, Gabriel 1985). An SPR of 20% has been recommended for Spanish and king mackerel in the Gulf of Mexico (National Oceanic and Atmospheric Administration/National Marine Fisheries Service 1995), while an SPR of 8-13% has been demonstrated to be sufficient for gulf menhaden (Vaughan 1987). In earlier analyses of Louisiana spotted seatrout fisheries (Louisiana Department of Wildlife and Fisheries 1991), an SPR threshold of 15% was recommended based on several years of data. Mace and Sissenwine (1993) examined 90 stocks of 27 species, and reported that the average replacement SPR for all these stocks was 18.7%, while the most resilient quarter of the stocks required a maximum of only 8.6%. These authors recommended that an SPR of 30% be maintained when there is no other basis for estimating the replacement level, as this level was sufficient in maintaining recruitment for 80% of the stocks examined. However, they noted that 30% may be overly conservative for an "average" stock, and reiterated the need for stock-specific evaluations of standards to enhance both safety and benefits in the fishery.

Sufficient information is not available to directly estimate a conservation threshold for southern flounder in Louisiana. However, the conservation target of 30% SPR established by the 1995 Regular Session of the Louisiana Legislature for black drum, southern flounder, sheepshead, and striped mullet appears to be adequate to maintain the southern flounder stock and prevent recruitment overfishing.

The use of any measure of the health of a fish stock as a perfect index is arguable. It is logical to conclude that growth overfishing should occur at a much lower fishing rate than that which would threaten recruitment. However, Mace and Sissenwine (1993) provide information to suggest that some stocks may have reduced recruitment at levels of fishing that would not reduce yield-per-

recruit. The preferable position for making recommendations on appropriate levels of fishing for a stock is to base those recommendations on actual measures of spawning stock size and recruitment for both the species and fishery in question. This requires a base of information resulting from monitoring of both the stock and the fishery over a variety of conditions. Without this information, conservation standards may either underestimate or overestimate the potential of a fishery. If the potential is underestimated, society loses the economic and social benefits of the harvest. If the potential is overestimated and the fishery is allowed to operate beyond sustainable levels, society loses the benefits of a sustainable fishery, and recovery will require some period of rebuilding, when effort must be reduced from the non-sustainable levels (Hilborn and Walters, 1993). Some researchers have speculated that overharvest of some stocks may lead to their replacement in the ecosystem by other, often less preferred, stocks. The frequency of such replacements is unknown, and the cause of shifts in species predominance in an ecosystem are difficult to ascertain, even after the fact. Such a shift has been reported in the Georges Bank area, where prolonged, intense harvest of cod and haddock has been implicated in gradual increases in skate and spiny dogfish populations (National Oceanic and Atmospheric Administration 1993).

5.6 Status of the Stock

Rules for the harvest of southern flounder have changed substantially over the last four years. Commercial harvest methods were changed on August 15, 1995 when Act 1316 of the 1995 Regular Legislative Session, the Marine Resources Conservation Act of 1995, became effective. This act outlawed the use of "set" gill nets or trammel nets in saltwater areas of Louisiana, and restricted flounder harvest by the use of "strike" nets to the period between the third Monday in October and March 1 of the following year. A "Restricted Species Permit" was required in order to harvest flounder, and several criteria were established in order to qualify for that permit. After March 1, 1997, all harvest by gill or trammel nets was banned, and commercial harvesters must utilized other legal commercial gear to harvest flounder. This set of regulations had the effect of substantially reducing the harvest of flounder by this segment of the commercial fishing industry.

A second set of regulations became effective on May 1, 1996. Recreational harvesters were restricted to a creel limit of ten (10) southern flounder, with one day's limit in possession. At the same time, the use of strike nets for the harvest of southern flounder was outlawed, and other commercial harvesters were limited to a possession limit of ten (10) fish per person aboard a commercial vessel. This set of regulations reduced the ability of some recreational harvesters to retain southern flounder, and also reduced the harvest potential of the commercial fishing industry.

In 1997, regulations were changed by Acts 1163 and 1352 of the 1997 Regular Legislative Session. Recreational and commercial harvesters continued to have daily take limit of 10 fish, but were allowed that take limit for each day on the water. Additionally, commercial shrimping vessels are limited to 100 pounds of southern flounder per shrimping trip.

In 1999, regulations were changed by Acts 220 of the 1999 Regular Legislative Session. The act eliminated the 100 pound harvest limit on commercial shrimping when southern flounder are harvested as by-catch. The Act became effective in August of 1999.

Commercial landings have fluctuated over the period 1950-1999 with the highest landings in the mid-1980s and mid-1990s at 0.94 and 0.97 million pounds, respectively (Figure 5.4). Regulatory measures implemented in 1995, 1996 and 1997 had much to do with the reduction in commercial harvest to 61,755 pounds in 1996, 94,898 pounds in 1997, 139,929 in 1998 and 140,124. Recreational landings were equal to or greater than those of the commercial fishery until 1991 when the commercial fishery began harvesting a greater percentage of the total harvest (Figure 5.5). As a result of the regulatory measures described above the recreational harvest was greater than the commercial harvest in 1996 - 1999. Fishery dependent commercial data prior to 1991 was obtained from NMFS's General Canvass Landing Program, from 1991 through 1998 it was collected by the LDWF's Monthly Dealer Reports and from 1999 to present LDWF's Commercial Reporting Requirement "Trip Tickets" program is utilized to gather this type of data.

Harvest from the recreational fishery has fluctuated for the years examined (1981-1999), and has been relatively stable since 1988. Mean catch-per-trip from the recreational fishery was calculated by selecting those trips that had southern flounder in the catch. The means with 95% confidence limits are presented in Figure 5.6. The catch-per-effort (CPUE) indices seem to cycle over the years examined, with 1987 having the lowest mean cpue. Since 1990 with the exception of the most recent year (1999), cpue has shown a declining trend with 1998 being significantly lower then 1982, 1983, 1990 and 1991. Fisheries dependent recreational landings data is collected through the NMFS's MRFSS survey and currently collected by LDWF Biologists.

Catch-per-effort data from the Department's, fishery-independent trammel net (750' - 1 5/8" inner, 6" outer wall) and 16-foot flat otter trawl samples were calculated as follows:

$$\text{Mean CPUE} = (\exp (\sum \ln (\text{catch} + 1) / N)) - 1$$

where, catch is the total number caught in each set and, N is the number of samples taken annually. Trammel net data were used for the period 1986-2000, and 16-foot trawl data were used for the period 1967-2000. Trammel net samples are collected from October through March. In order to use the most recent data available to us in this report, trammel net CPUE was estimated for two periods (January-March and October-December). This allowed the use of 2000 data through December. CPUE estimates from trammel nets fluctuated without any indication of a downward trend (Figure 5.7A-C). The large amount of variation in January - March samples for 1987 is due to small sample size (Figure 5.7A). Standardized CPUE estimates presented in Figure 5.7C indicate better than average catches in the latter half of the years examined. Trawl data were used to provide an index of young-of-the-year recruitment. The long-term database provide by 16-foot trawl data shows how CPUE cycles over time and represent natural fluctuations in recruitment. Whatever the cause of the cyclic nature of the indices, no evidence from the 16-foot trawl data indicates a long-term downward trend in CPUE for southern flounder (Figure 5.8).

It should be noted that the following results of YPR and SPR analysis do not reflect the impact of current regulations described above. With this type of general assessment, it will take several years before the impact of regulations will be observed in the disappearance rates from the fishery.

The results of YPR analysis indicate that if M=0.5 (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating between $F_{0.1}$ and F_{MAX}, with yields of 93% to 95% of maximum and SPR at 28% to 30%. An M of 0.8 (the highest value within the range examined) would produce yields of 56% to 60% of maximum with SPR at 51% to 54% (Table 5.4).

5.7 Research and Data Needs

Estimates of natural mortality used in the present assessment show wide variation. This variation reduces the reliability of the present assessment in providing an accurate prediction of the potential yield of the stock, and also reduces the confidence level of the present estimate of SPR. A more precise estimate of natural mortality would assist in both of these problems.

Annual sex specific age-length keys should continue to be developed to provide catch-at-age data necessary to conduct age-based population assessments. The department is in the process of collecting otoliths for development of annual age-length keys.

Sex specific fishery dependent length frequency data is essential in adequately partitioning catch from the fishery. In the case of flounder, males grow slower and do not get as large as females. There can be significant improvement in the accuracy of this assessment if sex is collected.

The relationship between wetlands losses or modifications and the continuation of fishery production within the state has been discussed by many authors. However, this relationship is likely to be different for the various fishery species. Understanding of this relationship for southern flounder should be an ongoing priority.

In the presence of changing regulations, fishery-dependent information is not a reliable source of data necessary to assess the status of a fish stock. However, such data is necessary to measure the effects of fishing on that stock. Consistent fishery-dependent and fishery-independent data sources, in a comprehensive monitoring plan, are essential to understanding the status of fishery stocks, and to identifying causes of changes in stock abundances. Present programs should be assessed for adequacy with respect to their ability to evaluate stock status, and modified or enhanced to optimize their capabilities.

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Table 5.1 - SAS output from length-weight regression analysis

The SAS System

Model: MODEL1
Dependent Variable: LOG_W

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	1	54.62048	54.62048	14726.405	0.0001
Error	966	3.58291	0.00371		
C Total	967	58.20339			

Root MSE	0.06090	R-square	0.9384
Dep Mean	2.90704	Adj R-sq	0.9384
C.V.	2.09497		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > |T|
INTERCEP	1	-5.386116	0.06836746	-78.782	0.0001
LOG_L	1	3.183690	0.02623508	121.352	0.0001

Table 5.2 - Age-at-length distribution of fish used in age-length key development.

Length (inches)	AGE								
	0	1	2	3	4	5	6	7	Total
6	1	3							4
7	16	9	1						26
8	64	20	2						86
9	93	85	5						183
10	52	99	7	1					159
11	38	174	27	3			1		243
12	15	198	35	5					253
13	12	163	39	5					219
14	8	280	103	17			1		409
15	2	180	79	13	1				275
16		173	107	22	3				305
17	1	82	61	22	3				169
18	1	69	54	21	4	5		1	155
19	1	20	22	2	5	1			51
20		12	22	11	5				50
21	1	4	9	5	4				23
22		1	8	3	1		1		14
23			2	3	2	1	1		9
24				2	2	2			6
25				1					1
26				1					1
Total	305	1572	583	137	30	9	4	1	2641

Table 5.3 Regression Output from the Estimation of Disappearance Rates

1994

Regression Output:		
Constant		14.915731
Std Err of Y Est		0.2266308
R Squared		0.9943758
No. of Observations		7
Degrees of Freedom		5
X Coefficient(s)	-1.273414	
Std Err of Coef.	0.0428292	

1995

Regression Output:		
Constant		14.441602
Std Err of Y Est		0.2408644
R Squared		0.9937897
No. of Observations		7
Degrees of Freedom		5
X Coefficient(s)	-1.287563	
Std Err of Coef.	0.0455191	

1996

Regression Output:		
Constant		13.727194
Std Err of Y Est		0.3056498
R Squared		0.9906913
No. of Observations		7
Degrees of Freedom		5
X Coefficient(s)	-1.332462	
Std Err of Coef.	0.0577624	

1997

Regression Output:		
Constant		13.807823
Std Err of Y Est		0.3382599
R Squared		0.9879663
No. of Observations		7
Degrees of Freedom		5
X Coefficient(s)	-1.295175	
Std Err of Coef.	0.0639251	

1998

Regression Output:		
Constant		13.657311
Std Err of Y Est		0.2943606
R Squared		0.9907404
No. of Observations		7
Degrees of Freedom		5
X Coefficient(s)	-1.286675	
Std Err of Coef.	0.0556289	

1999

Regression Output:		
Constant		13.757746
Std Err of Y Est		0.2576577
R Squared		0.9932828
No. of Observations		7
Degrees of Freedom		5
X Coefficient(s)	-1.324009	
Std Err of Coef.	0.0486927	

Table 5.4 Results of Yield per Recruit and SPR Analysis for Southern Flounder

M=0.5

	F Ratio	YPR	SPR	%SPR	%YPR	
F-max =	2.0492	0.6364	0.3508	12.75%	100.00%	Benchmarks
F0.1 =	0.5684	0.5584	1.0486	38.11%	87.74%	
F30% =	0.7836	0.5990	0.8256	30.00%	94.12%	
F20% =	1.2633	0.6301	0.5504	20.00%	99.00%	
1994 =	0.7734	0.5977	0.8341	30.31%	93.91%	Estimates
1995 =	0.7876	0.5995	0.8223	29.88%	94.20%	
1996 =	0.8325	0.6048	0.7866	28.58%	95.03%	
1997 =	0.7952	0.6005	0.8160	29.65%	94.35%	
1998 =	0.7867	0.5994	0.8230	29.91%	94.18%	
1999 =	0.8240	0.6039	0.7931	28.82%	94.89%	

M=0.6

	F Ratio	YPR	SPR	%SPR	%YPR	
F-max =	7.3434	0.5827	0.0882	4.46%	100.00%	Benchmarks
F0.1 =	0.6884	0.4724	0.7377	37.32%	81.07%	
F30% =	0.9275	0.5065	0.5931	30.00%	86.92%	
F20% =	1.5153	0.5415	0.3954	20.00%	92.93%	
1994 =	0.6734	0.4695	0.7489	37.88%	80.57%	Estimates
1995 =	0.6876	0.4722	0.7383	37.35%	81.04%	
1996 =	0.7325	0.4803	0.7064	35.73%	82.43%	
1997 =	0.6952	0.4737	0.7327	37.06%	81.29%	
1998 =	0.6867	0.4720	0.7390	37.38%	81.01%	
1999 =	0.7240	0.4789	0.7122	36.03%	82.18%	

M=0.7

	F Ratio	YPR	SPR	%SPR	%YPR	
F-max =	8.2121	0.5218	0.0700	4.80%	100.00%	Benchmarks
F0.1 =	0.8213	0.4052	0.5357	36.71%	77.67%	
F30% =	1.0868	0.4341	0.4377	30.00%	83.20%	
F20% =	1.7964	0.4704	0.2918	20.00%	90.16%	
1994 =	0.5734	0.3589	0.6724	46.08%	68.79%	Estimates
1995 =	0.5876	0.3623	0.6629	45.43%	69.45%	
1996 =	0.6325	0.3725	0.6344	43.47%	71.39%	
1997 =	0.5952	0.3641	0.6579	45.09%	69.79%	
1998 =	0.5867	0.3621	0.6635	45.47%	69.41%	
1999 =	0.6240	0.3706	0.6396	43.83%	71.04%	

M=0.8

	F Ratio	YPR	SPR	%SPR	%YPR	
F-max =	9.0072	0.4681	0.0568	5.15%	100.00%	Benchmarks
F0.1 =	0.9725	0.3531	0.3976	36.08%	75.43%	
F30% =	1.2606	0.3775	0.3306	30.00%	80.64%	
F20% =	2.1047	0.4143	0.2204	20.00%	88.52%	
1994 =	0.4734	0.2661	0.6038	54.79%	56.84%	Estimates
1995 =	0.4876	0.2700	0.5953	54.02%	57.68%	
1996 =	0.5325	0.2816	0.5697	51.70%	60.17%	
1997 =	0.4952	0.2721	0.5908	53.61%	58.12%	
1998 =	0.4867	0.2698	0.5958	54.06%	57.63%	
1999 =	0.5240	0.2795	0.5744	52.12%	59.72%	

Figure 5.1 Fit of Growth Equation to Observed Age at Length
Female Southern Flounder

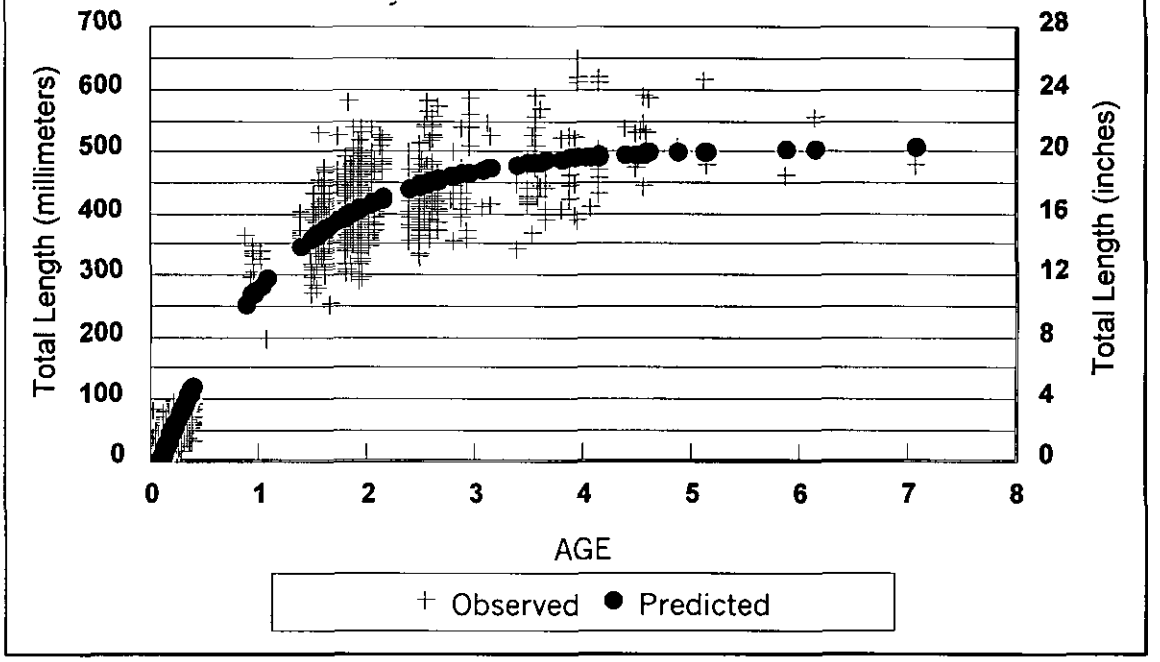
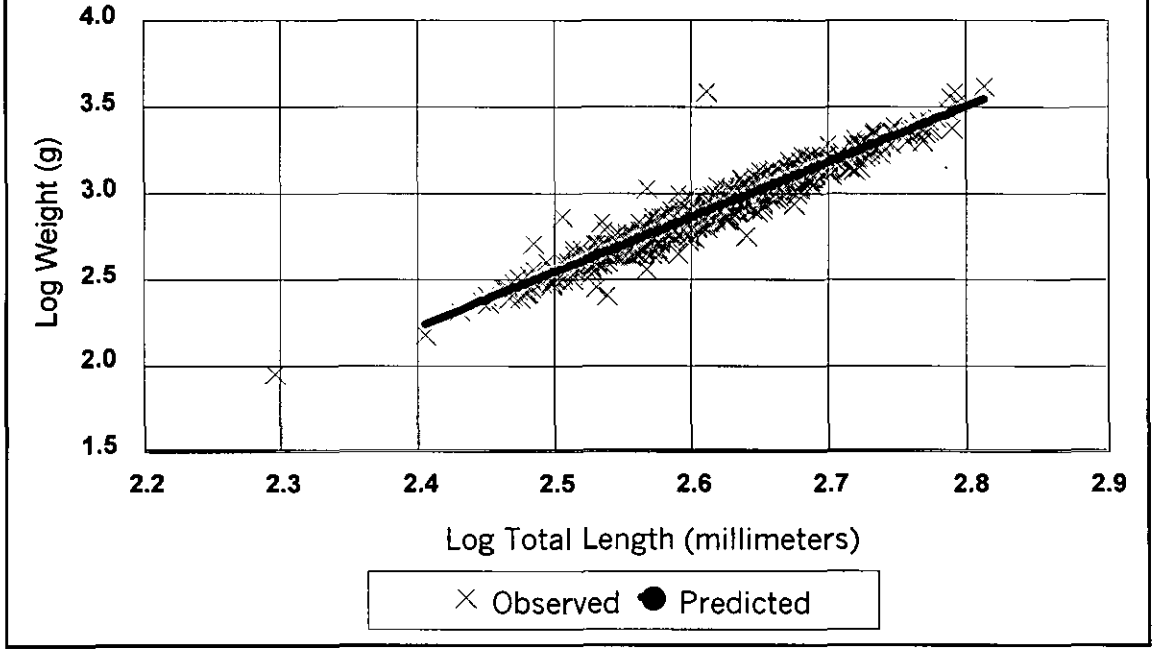


Figure 5.2 - Fit of Length Weight Regression
Female Southern Flounder



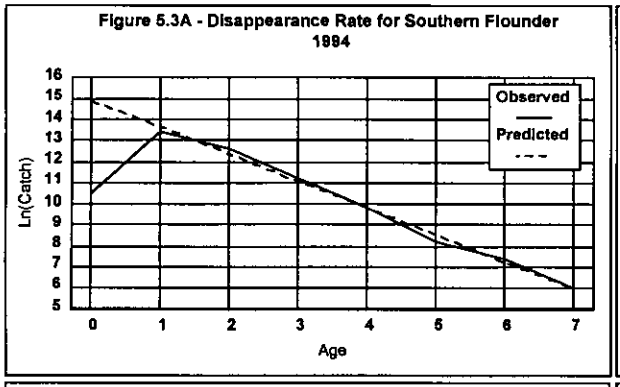


Figure 5.3A - Disappearance Rate for Southern Flounder
1994
Observed
Predicted
Ln(Catch)
Age

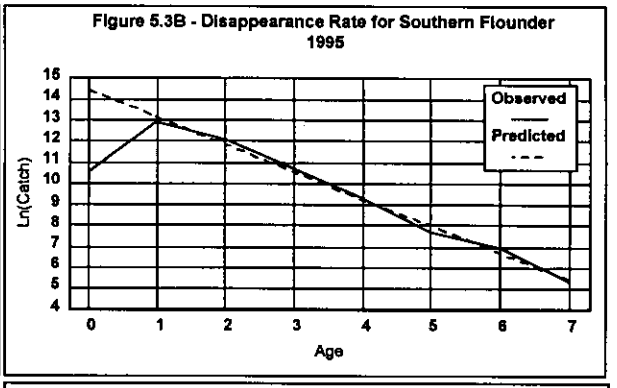


Figure 5.3B - Disappearance Rate for Southern Flounder
1995
Observed
Predicted
Ln(Catch)
Age

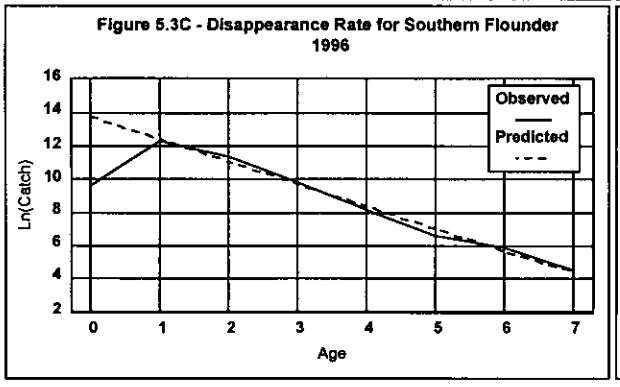


Figure 5.3C - Disappearance Rate for Southern Flounder
1996
Observed
Predicted
Ln(Catch)
Age

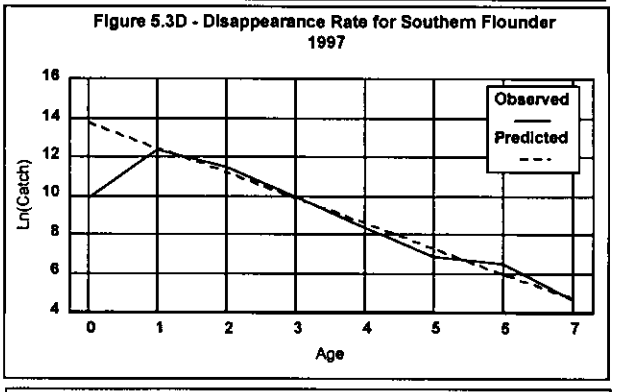


Figure 5.3D - Disappearance Rate for Southern Flounder
1997
Observed
Predicted
Ln(Catch)
Age

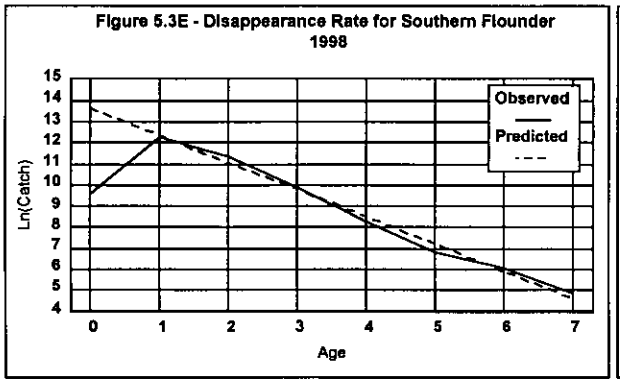


Figure 5.3E - Disappearance Rate for Southern Flounder
1998
Observed
Predicted
Ln(Catch)
Age

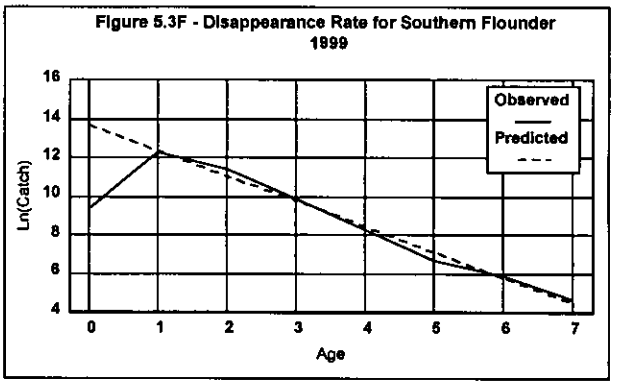


Figure 5.3F - Disappearance Rate for Southern Flounder
1999
Observed
Predicted
Ln(Catch)
Age

Figure 5.4 - Commercial Harvest of Southern Flounder in Louisiana

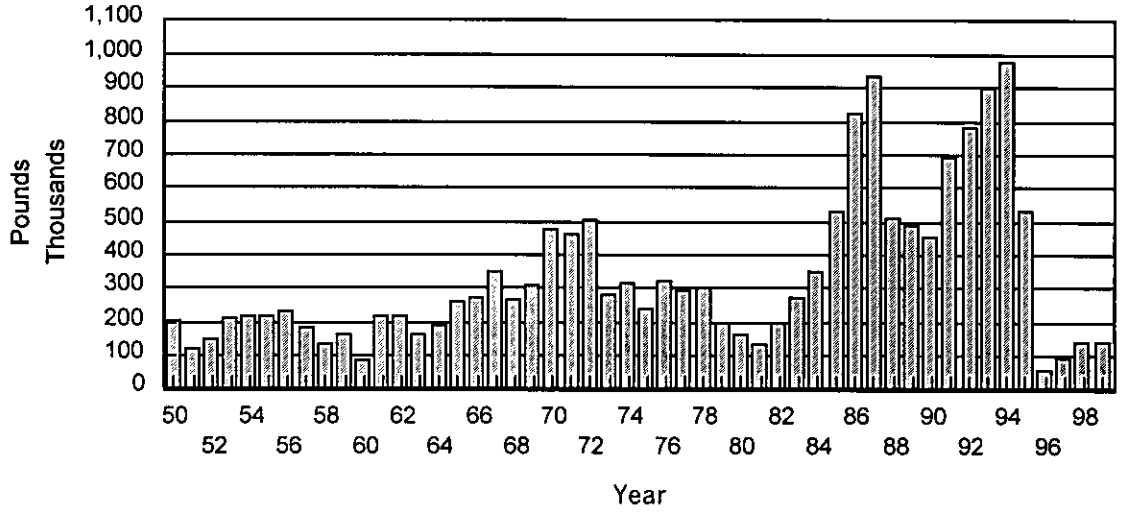


Figure 5.5 - Louisiana Commercial and Recreational Harvest of Southern Flounder

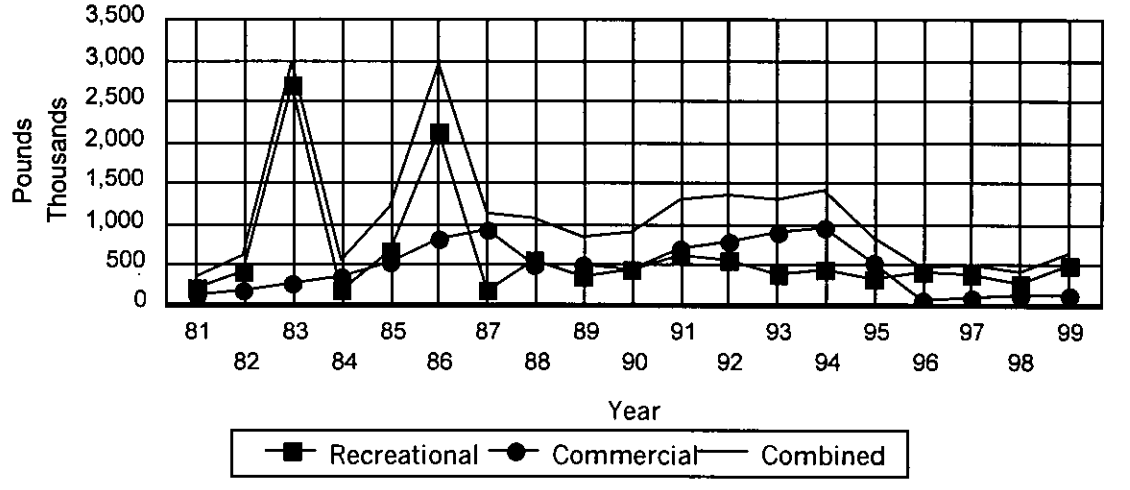


Figure 5.6 - Catch per Effort of Southern Flounder in Louisiana
NMFS Marine Recreational Fishery Statistics Survey

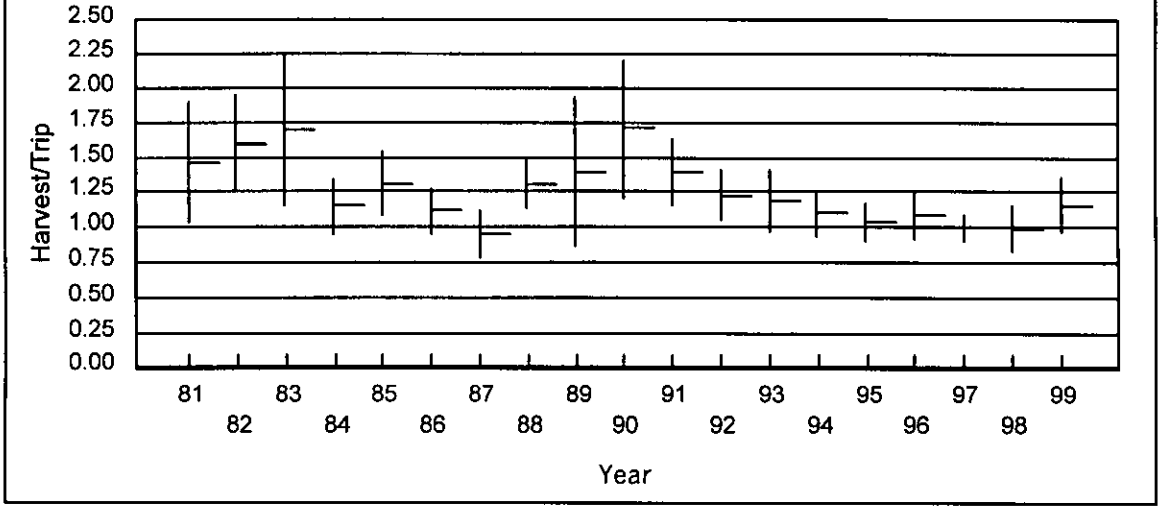


Figure 5.7A - Catch per Effort of Southern Flounder in Trammel Nets
Marine Fisheries Division, Monitoring Program (January - March)

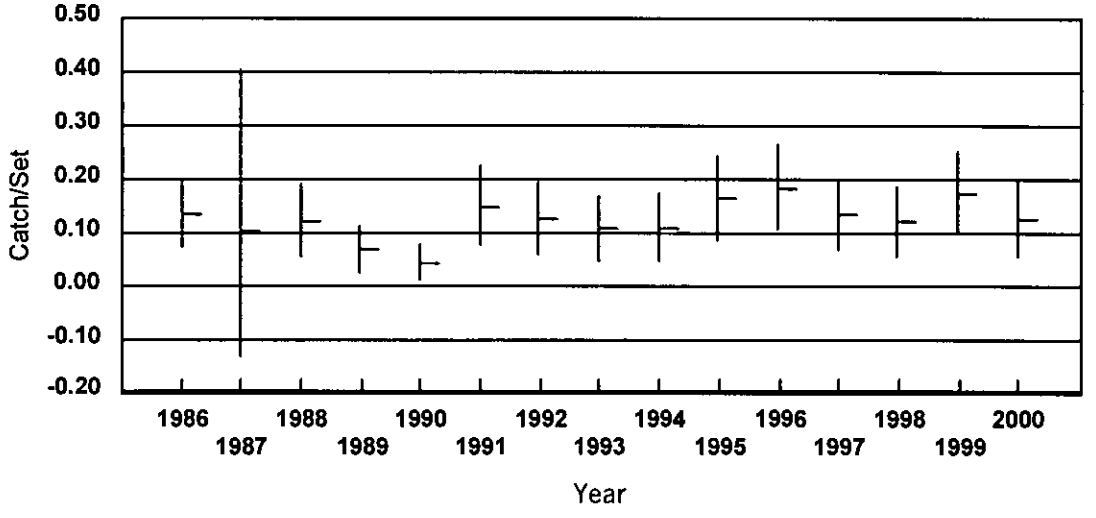


Figure 5.7B - Catch per Effort of Southern Flounder in Trammel Nets
Marine Fisheries Division, Monitoring Program (October - December)

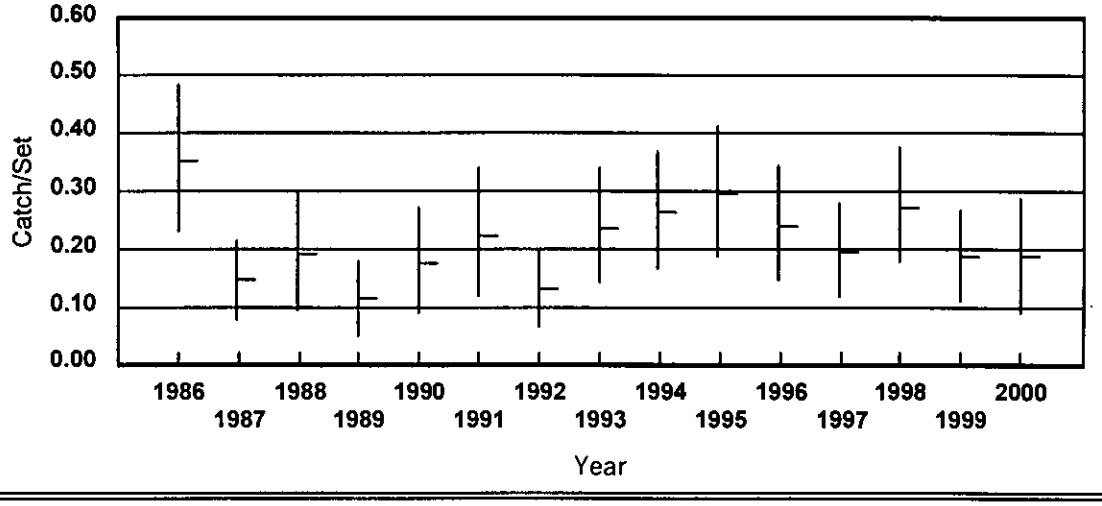


Figure 5.7C - Standardized CPUE of Southern Flounder in Trammel Nets
Marine Fisheries Division, Monitoring Program

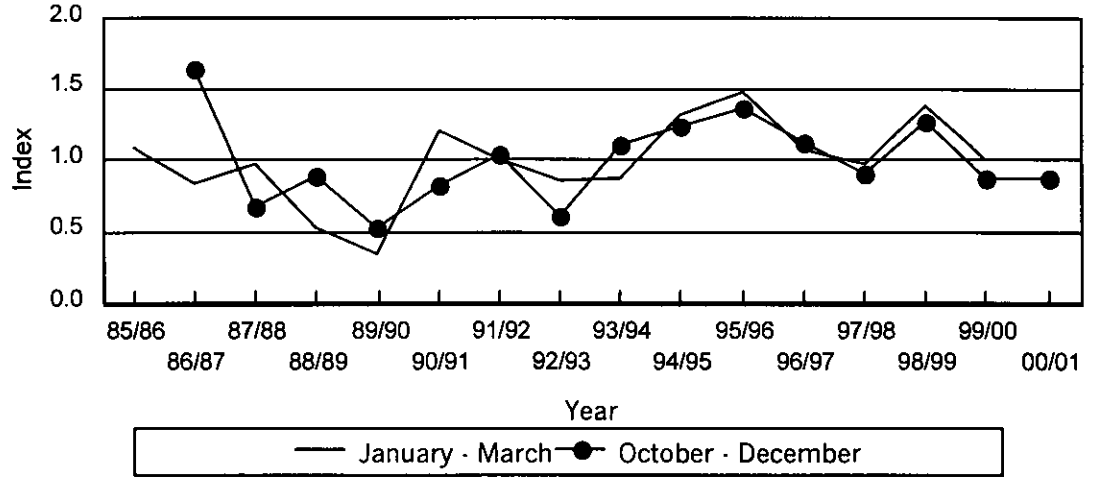
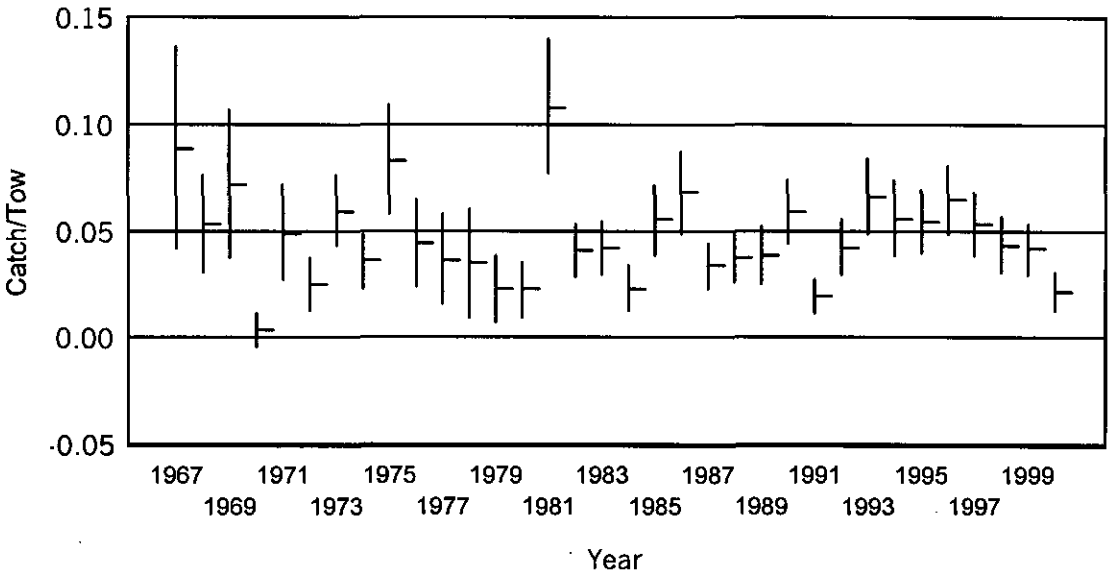


Figure 5.8 - Catch per Effort of Southern Flounder in 16' Trawls
Marine Fisheries Division, Monitoring Program



Peer review participants:

Mr. Roy Williams
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, FL 32399-1600

Mr. Mike Murphy
Florida Marine Research Institute
100 8th Ave., SE
St. Petersburg, FL 33701-5020

Mr. Vern Minton, Director
Alabama Dept. of Conservation
Marine Resources Division
Post Office Drawer 458
Gulf Shores, AL 36542

Mr. Glen H. Carpenter, Director
Mississippi Dept. of Marine Resources
1141Bayview Ave., Suite 101
Biloxi, MS 39530

Mr. Hal Osburn, Policy Director
Coastal Fisheries Division
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744

Mr. Larry Simpson
Gulf States Marine Fisheries Commission
Post Office Box 726
Ocean Springs, MS 39564

Dr. Joe Powers, Regional Director
NMFS - SERO
9721 Executive Center Drive N.
St. Petersburg FL 33702

Dr. Richard Condrey
Louisiana State University
Coastal Fisheries Institute, CCEER
Wetlands Resources Building
Baton Rouge, LA 70803-7503

Dr. Charles Wilson
Coastal Fisheries Institute
Center for Wetland Resources
Louisiana State University
Baton Rouge, LA 70803-7503

Dr. Bruce Thompson
Coastal Fisheries Institute
Center for Wetland Resources
Louisiana State University
Baton Rouge, LA 70803-7503

Dr. Robert L. Shipp
University of Alabama
Department of Marine Sciences
LSCB 25
Mobile, AL 36688-0002

Pausina, Randy

From: Muller, Robert [Robert.Muller@fwc.state.fl.us]
Sent: Monday, January 29, 2001 1:48 PM
To: 'pausina_rb@wlf.state.la.us'
Cc: 'williar@gfc.state.fl.us'
Subject: Stock assessment reviews

LA_SA_ 2001.wpd

Randy,

The attached file contains the comments on the draft southern flounder and striped mullet stock assessments. The consensus is that catch curves are inappropriate especially considering recent regulatory changes noted in the section 5.6. It is difficult to assume constant mortality rates and lower the harvest by half.

Bob Muller

(727) 896-8626, Ext 4118
robert.muller@fwc.state.fl.us

<<LA_SA_ 2001.wpd>>

Randy

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

FLORIDA MARINE RESEARCH INSTITUTE
(727) 896-8626, SC 523-1011

January 29, 2001

Mr. Randy Pausina
Department of Wildlife and Fisheries
P. O. Box 98000
Baton Rouge, Louisiana 70898-9000

Dear Mr. Pausina:

Roy Williams of Florida Division of Marine Fisheries passed on your 2000 southern flounder stock assessment and striped mullet to review. Before I responded on the flounder I looked up my comments from January 29, 1998 and saw that the same comments are relevant today as they were three years ago. The von Bertalanffy growth curve in the 2000 assessment is the same as that used in the 1997 assessment and still shows fish of all ages with lengths greater than the L_∞ value. All fish are assumed to be female for the purposes of estimating mortality rates even with sexual dimorphic growth. The stock assessment still lacks catch-at-length and catch-at-age tables so that a reviewer does not have any data to evaluate. The stock assessment continues to use catch curves and continues to calculate them with the biased semi-log regression instead of the Robson-Chapman method. Catch curves are even less appropriate now because Figures 5.4 and 5.5 show that harvests have been markedly lower after 1995 violating the assumptions of constant recruitment and constant mortality. Given the high mortality rates I would assume that there are few fish older than three years and since the reductions occurred in 1995-96, the mortality rates should reflect the lower harvests illustrated in Figure 5.5? The output of the catch curves (Table 5.3) shows that the intercepts changed after 1995 but the slopes stayed the same. One expected to see similar intercepts but lower slopes, i.e. similar recruitment but lower mortality rates.

A plot of recreational flounder catch rates is presented in Figure 5.6 but these are only the trips that caught southern flounder, what about the trips that targeted flounder but were unsuccessful? Also, there are no details as to whether the catch rates were standardized using general linear models or generalized linear models taking into account that the catches should reflect a Poisson distribution.

The flounder assessment says that length frequency data was available from 1994 - 1998 (page 4). Is that a typo or are there no length data from 1999?

Behzad Mahmoudi looked over the striped mullet assessment. He noted that relative selectivity values for ages 2 through 4 seem to be low. This may be the effect of using linearized catch curve method (Sparre and Venema 1992). Are there length frequency data available from non-selective gears (e.g.., haul seine or purse seine) which could be used to estimate selection curves for 31/2 to 4 inch stretch gill nets?

Behzad went on to note that now having six-years or more of catch, length frequency, age-length keys, it may be time to give up catch curves for tuned, virtual population models such as ADAPT or Integrated Catch at Age (ICA) and tune these models with fishery-independent time series) for annual assessment. This modeling approach would remove the requirements of constant mortality and recruitment and provide age and year specific estimates of fishing mortality rates, spawning stock, and recruitment.

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

FLORIDA MARINE RESEARCH INSTITUTE
(727) 896-8626, SC 523-1011

25 January 2001

Randall Pausina
Marine Fisheries Division
Louisiana Department of Fish and Wildlife
P.O. Box 98000
Baton Rouge, LA 70898-9000

Dear Randall,

I was asked to review the black drum and sheepshead assessment summaries you sent to Roy Williams and me on January 11. The documents are not technical enough to thoroughly review the yield-per-recruit or spawning potential ratio analyses, but I have a few general comments:

Black drum

1.) Age-length keys would be a more appropriate way to convert length frequencies to ages and still preserve the underlying year-class strength fluctuations.
2.) The use of 'static' analyses of YPR and SPR are fine but more recent estimates of fishing mortality and selectivity patterns are needed if these are to be used to predict the future condition of the stock under *current* fishing mortality.
3.) Batch fecundity was reported in the document but annual fecundity is needed in the calculation of SPR. The frequency of spawning and the length of the spawning season needs to be considered for all age groups used in the analyses.

Sheepshead

1.) What age is assigned to any sheepshead that are larger than the asymptotic length?
2.) It might be better to use the selectivities calculated as the fraction of the extrapolated catch-curve's predicted catch rather than to use those predicted by the to fit a logistic model, i.e. why smooth the data?
3.) With the capture of sheepshead delayed to ages 4 or 5 by the current regulations, it appears reasonable that sheepshead are not overfished, i.e. $F_{max} > 50$.
4.) It is likely that Wilson *et al.*'s growth data are biased since they collected only age-2 sheepshead and older. Likewise, the maturity schedules from these data may be biased. We found slower growth and older age at maturity in Florida.

Thanks for the opportunity to look these over again.

Sincerely,

Michael D. Murphy
Research Scientist

100 Eighth Avenue Southeast * St. Petersburg * Florida * 33701-5095
www.fmri.usf.edu

State of Louisiana

Feb 1

James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

January 11, 2001

Randy - Bruce has Mullet
Herman BD & Florida - I have
sheepshead to do yet. dl

Dr. Charles Wilson
Coastal Fisheries Institute
Center for Wetland Resources
Louisiana State University
Baton Rouge, LA 70803-7503

Dear Dr. Wilson:

The Louisiana Department of Wildlife and Fisheries is charged with providing species profile information and annual stock assessments on black drum, sheepshead, striped mullet, and southern flounder at the February meeting of the Wildlife and Fisheries Commission. Enclosed are the draft stock assessment reports for these species for 2001. They will be presented to the Commission at their February 1 meeting. I would appreciate it if a person from your office, familiar with the species, would review our documents prior to that time, and provide comments to us, so that we can be assured of presenting the best possible report to our Commission. We will attempt to incorporate comments received by January 30 into the documents prior to the Commission meeting.

This request is being sent to the administrators of the marine fisheries management agencies of all Gulf states, the Gulf States Marine Fisheries Commission, university fishery scientists, and the regional office of National Marine Fisheries Service, among others.

In past years, we also sent out a similar request for review of stock assessment documents, and I wish to thank all of the persons who spent their time in this review process.

If you have staff with expertise in one or more of these species, I would appreciate it if they could review the information on the species of their interest.

If you have any questions, please feel free to call me at (225)765-2889, FAX (225) 765-2489 or e-mail: (pausina_rb@wlf.state.la.us). In advance, I thank you for your timely attention to this matter.

Sincerely,

RBPausina

Randy Pausina
Marine Fisheries Division
Finfish Programs Manager

DLM

January 9, 2001

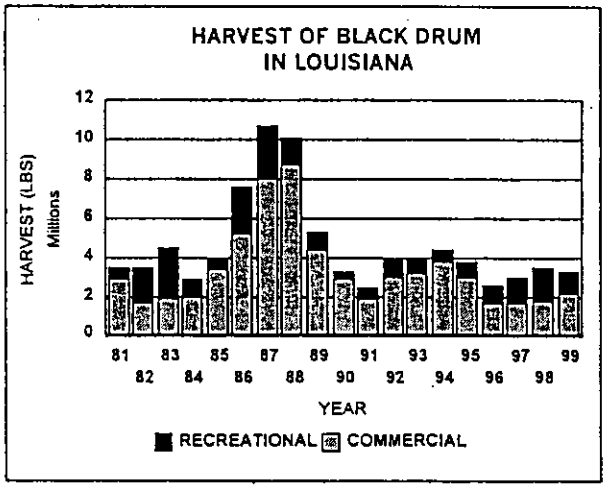
BLACK DRUM
SUMMARY OF CHANGES FROM 2000 ASSESSMENT

This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2000 assessment conducted for black drum.

- There is no substantive changes in methods from the 2000 assessment.

2001 DOCUMENT HIGHLIGHTS

- 1999 combined commercial and recreational harvest of 3,313,120 pounds was slightly below 1998 harvest and still lower than 1995 when harvest regulations went into effect (Act 1316).



- The results of YPR analysis indicate that if M=0.1 (the most conservative value within the range of estimates), the fishery prior to existing regulations (Act 1316) was operating above $F_{0.1}$ and below F_{MAX} with yield of 92% of maximum, and SPR at 42%. An M of 0.15 or 0.2 would indicate a more lightly fished stock with yield being 67% to 45% of maximum and with SPR being 56% to 67% respectively.

B-D
look good DLM
nada further
min comments

BLACK DRUM
5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR) and Spawning Potential Ratio (SPR) to estimate the impact of fishing pressure on potential yield and the spawning potential of the black drum stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female black drum are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Were there not multiple authors on this compendium?

Luquet (1996) presents several growth equations for black drum. The one chosen for this assessment was developed by Geaghan and Garson (unpublished), and is a sloped asymptote model fitted to a von Bertalanffy growth equation. The data used by Geaghan and Garson (unpublished) was from Beckman et al. (1988) who used otolith sections in aging fish caught in Louisiana waters. The sloped asymptote model proved to fit the data better than did other equations. The equation is as follows:

$$L_t = (610 + 9.959 * t) * (1 - e^{-0.6226(t-0.1229)})$$

where, L_t = length at age t, and t = age in years.

The length-weight regression described by Beckman et al. (1988) from fish harvested in Louisiana was used in this assessment. The equation is as follows:

$$\log(W) = 3.05 * \log(FL) - 4.943$$

where, W = weight in grams, and FL = fork length in millimeters.

Beckman et al. (1550) would be a better citation!

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically, natural mortality is estimated, as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously.

This assessment follows the former Louisiana Department of Wildlife and Fisheries (1990) assessment in using a range of values for natural mortality (0.1, 0.15, 0.2) to evaluate the sensitivity of M on the resulting spawning stock.

5.3 Fishing Mortality

Fishing mortality estimates derived in the former Louisiana Department of Wildlife and Fisheries (1990) assessment were used in this assessment to evaluate the impact of current fishing regulations on the spawning potential of the stock. The former assessment did not address the concept of spawning potential as a management measure. Only recently has this concept become widely used.

The former assessment used the growth equation described in Section 5.1 to develop annual catch-at-age tables.

5.4 Yield-per-Recruit

Yield-per-recruit and SPR analysis provides basic information about the dynamics of a fish stock by estimating the impact of mortality on yield and the spawning potential of the stock. The results can be examined as to the sensitivity of natural and fishing mortality rates on yield and spawning potential.

The growth parameters described in Section 5.1, the age-specific fishing mortality rates described in Section 5.3, and the natural mortality rates described in Section 5.2 were incorporated into the yield-per-recruit and spawning potential analysis. Fecundity estimates derived by Wilson et al. (1992) were used to estimate spawning potential. The equation is as follows:

$$\ln(BF) = 0.76 * \ln(Age) + 12.24$$

This applies only to mature females, i.e., those at or over age 5 yr. See

where, BF=batch fecundity. The results are presented in Table 5.1, which contains estimates of F_{MAX} (fishing mortality rate that produces maximum yield), $F_{0.1}$ (fishing mortality rate representing 10% of the slope at the origin of a yield-per-recruit curve), $F_{20\%SPR}$ (fishing mortality that produces 20% SPR), $F_{30\%SPR}$ (fishing mortality that produces 30% SPR), and estimates of F from Section 5.3.

Nieland + Wilson (1993) would be better.

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Hilborn, R. and C. J. Walters. 1992. Quantitative Fisheries Stock Assessment: Choice, Dynamics and Uncertainty. Chapman and Hall, New York. 570 pp.

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→ Additional authors?

Luquet, C. 1996. A biological and fisheries profile for black drum *(Pogonias cromis)* in Louisiana. La. Dept. of Wildlife and Fisheries, Office of Fisheries. Fisheries Management Plan Series No. 7, Pt. 1.

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National Oceanic and Atmospheric Administration 1993. Our Living Oceans: Report on the Status of U.S. Living Marine Resources, 1993. NOAA Tech. Memo. NMFS-F/SPO-15. 156 pp.

Andy - please read ASAP AF ✓
Jew me comments

DRAFT - January 8, 2001

SOUTHERN FLOUNDER
SUMMARY OF CHANGES FROM 2000 ASSESSMENT

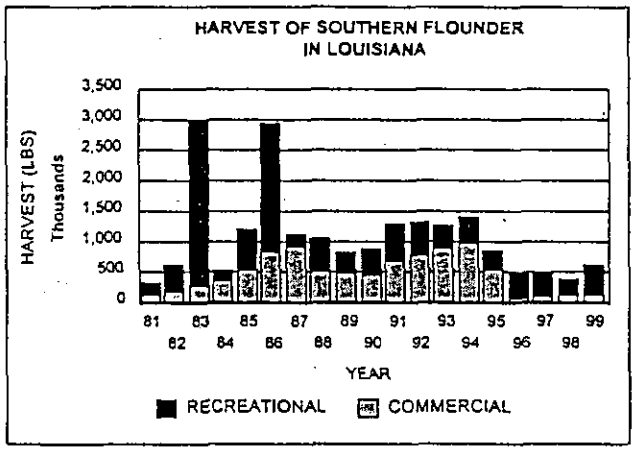
This summary is intended to provide a quick reference of substantive changes in methods or corrections in this year's assessment from the 2000 assessment conducted for southern flounder.

- There were no substantive changes to the flounder assessment in 2001.

2001 DOCUMENT HIGHLIGHTS

- 1999 combined commercial and recreational harvest of 638,613 pounds was an increase from the last four years, but lower than landings from the mid 1980's to mid 1990's.

- The results of YPR analysis indicate that for the years assessed (1994-1999) if M=0.5 (the most conservative value within the range of estimates), the fishery prior to existing regulations was operating between $F_{0.1}$ and F_{MAX}, with yields of 93% to 95% of maximum and SPR at 28% to 30%. An M of 0.8 (the highest value within the range examined) would produce yields of 56% to 60% of maximum with SPR at 51% to 54%.



- It should be noted that the method used in this assessment to determine the status of the stock, reflected in the estimates of disappearance, is not immediately sensitive to changes in regulations. It takes several years, depending on the longevity of the species, before the impact of changes in fishing mortality are realized.

Read by Andy Fischer -
Jew comments

SOUTHERN FLOUNDER
5.0 STOCK ASSESSMENT

This assessment uses yield-per-recruit (YPR), Spawning Potential Ratio (SPR) and catch curve analyses to estimate the impact of fishing pressure on potential yield and the spawning potential of the southern flounder stock in Louisiana waters. Estimates derived from YPR and SPR are based on information regarding the growth rate and spawning potential of the fish, and on estimates of the natural mortality rate (M) and fishing mortality rate (F) on the stock. Catch-curve analysis estimates disappearance rates (Z') from the fishery based on the relative abundance of each age class in the harvest. The results from this assessment provide a generalized approach towards estimating the impact of fishing on the spawning potential and potential yield of the fish stock. The spawning biomass of females is assumed to be the factor limiting the spawning potential of the stock; therefore, where possible, only data on female southern flounder are used. Yield-per-recruit and SPR analysis, as with many other generalized assessments, should be used only as a guide until a more comprehensive assessment can be conducted.

In developing a stock assessment, the unit stock must be defined. While a unit stock is often represented by that portion of the population which is genetically similar, for our purpose, the most applicable definition seems to be one which considers the unit stock as that portion of the population which is either dependent on Louisiana waters, or which is available to Louisiana fishermen.

5.1 Growth

Von Bertalanffy growth parameters were calculated for female southern flounder in Louisiana by using aged samples collected by Thompson (B. Thompson, Coastal Fisheries Institute, Louisiana State University, unpublished data) combined with juveniles assigned to age 0 (< 100 mm total length) by length frequency analysis from Louisiana Department of Wildlife and Fisheries (LDWF) fishery-independent trawl samples. From the combined data, a three-parameter von Bertalanffy growth equation was estimated using nonlinear approximation (SAS, 1987). The equation is as follows:

$$\text{Female } L_t = 509(1\text{-}e^{-0.8846(t-0.0954)})$$

where, L_t = length at age t. A plot of the data and predicted growth is provided in Figure 5.1. A length-weight regression for female southern flounder was derived using fish collected in Louisiana by Thompson (unpublished data) and the LDWF fishery-independent surveys. The resulting output of the SAS regression analysis is presented in Table 5.1. The length-weight regression used is as follows:

$$\log W = 3.18369 * \log L - 5.386116$$

where, W = body weight in grams, and L = total length in millimeters. A plot of the data and predicted weight-at-length is provided in Figure 5.2.

5.2 Natural Mortality

Natural mortality is one part of total mortality (Z) and is the mortality due to all causes other than fishing. These include predation, disease, spawning stress, starvation, and old age. Typically, natural mortality is estimated as it is difficult to directly measure, especially on exploited fish stocks where natural mortality and fishing mortality occur simultaneously. No direct measure of natural mortality for southern flounder is available; therefore, several established estimation procedures were used to derive an estimate. The procedures are presented below and are taken from Sparre and Venema (1992).

Pauly (1980) provides a method of estimating natural mortality from a set of parameters including the asymptotic length and growth rate of the fish, and the average water temperature of the environment. The growth parameters from the von Bertalanffy growth equation described in Section 5.1 and the mean annual water temperature, derived from readings from a set of four constant recorders located throughout the Barataria Bay system, were used in the calculation. The mean water temperature was 22.7°C for the period 1989 - 1992 (pers. comm., M. Kasprzak, 4/13/92). These values were incorporated into the length-based function of Pauly (1980):

$$\ln(M) = -0.0152 - 0.279 * \ln(L_\infty) + 0.6543 * \ln(K) + 0.463 * \ln(T).$$

where, ln(M) = natural log of natural mortality, $\ln(L_\infty)$ = natural log of the asymptotic length, ln(K) = natural log of the growth coefficient and ln(T) = natural log of the mean annual temperature in degrees Celsius.

Use of Louisiana data on growth and water temperature applied to Pauly's function results in a natural mortality estimate of M=0.68.

Alagaraja (1984) and Hoenig (1983) provide methods of estimating M based on the fish's lifespan or longevity with the assumption that M=Z. Longevity is also difficult to determine for exploited fish stocks, since the age distribution is usually truncated by fishing, but these methods are as useful as any in providing provisional estimates of natural mortality. The functions described by Alagaraja (1984) are:

$$M1\% = -\ln(0.01)/Tm$$
$$M0.1\% = -\ln(0.001)/Tm$$

2 Female Southern Flounder from LA aged at 8 years - should change natural mortality rates

where, M1% and M0.1% are the natural mortality rates corresponding to 99% and 99.9% mortality, respectively, given a fish's lifespan (Tm) in years. Female southern flounder in Louisiana have been aged to ~~7 years old~~ (Thompson, personal communication). If it is assumed that 99% or 99.9% of the fish die by age 7 then corresponding natural mortality rates for M1% and M0.1% would be 0.66 and 0.99 respectively.

The function described by Hoenig(1983) is :

$$\ln(Z) = 1.46 - 1.01 * \ln(Tm)$$

where, when M=Z, longevity (Tm) can be defined as the maximum survival age. If we assume that the maximum age of southern flounder has been truncated due to fishing from 9 to 7 years, the

This maximum age of 7 years seems a bit unrealistic due to the fact southern flounder have never been accurately aged (using sectioned otoliths) above 8 years

resulting estimate of natural mortality, given Tm=7, would be 0.60. However, if our assumption is incorrect and the maximum age is 9 years then the estimate of natural mortality would be 0.47.

Another method of estimating M is described by Rikhter and Efanov (1976) and utilizes population age at sexual maturity. The function is:

Our research indicated 50% maturity after their 1st Birthday with "maturity" being defined as the presence of vitellogenic oocytes. This does not mean, however, that these fish were spawning. Age 2 is probably a more realistic estimate of when 50% (or more) females are mature & spawning.

$$M = 1.521/(Tm50\%^{0.720}) - 0.155$$

where, Tm50% is the age at which 50% of the population is mature. Age 1 is assumed to be the age at 50% maturity, based on the length at sexual maturity found by several researchers (Adkins et al. 1996), and results in an M of 1.37. However, if 50% maturity occurs at age 2 rather than age 1, the estimate of natural mortality would be 0.77.

In summary, the estimated rates of natural mortality for southern flounder in Louisiana using a variety of estimation procedures are as follow:

Pauly (1980)	0.68
Alagaraja (1984)	0.66 and 0.99
Hoenig (1983)	
1) Longevity 9 years	0.47
2) Longevity 7 years	0.60
Rikhter and Efanov (1976)	
1) 50% maturity age 1	1.37
2) 50% maturity age 2	0.77

5.3 Disappearance Rates and Fishing Mortality

The disappearance rate (Z') from the fishery comprises total mortality (natural + fishing) and some unknown rate of decreasing availability of the fish to the fishery. If the unknown rate of availability is small or nonexistent, then the disappearance rate will be a reasonable estimate of total mortality. However, if a large portion of the disappearance rate is due to fish not being available to the fishery, then assuming Z'=Z will overestimate the impact of fishing.

An annual catch-at-age matrix was developed by applying a single age-length-key to the years where length frequency data for the commercial and recreational fishery was available (1994 - 1998). Length frequency data were obtained from the Trip Interview Program (TIP) for the commercial fishery, and from the National Marine Fisheries Service's (NMFS) Marine Recreational Fishery Statistics Survey (MRFSS) for the recreational fishery. The data from both of the surveys did not distinguish between sexes, therefore we assumed for this assessment that all fish sampled were female (n=2,641). An age-length-key was developed from otolith aging of fish by Thompson (unpublished data) and LDWF's ongoing aging study. Twenty six hundred and forty one aged fish were used in the development of the age-length key (Table 5.2). To calculate disappearance rates, we regressed the natural log of the catch-at-age, beginning with the age at full recruitment to the fishery. This method assumes that recruitment is constant and the fishery is in equilibrium. A range of natural mortality rates were used in the assessment. After reviewing estimates of M in Section

Louisiana Big Game Records

Current State Listing
Fall 2000

LOUISIANA BIG GAME RECORDS
3rd RECOGNITION PROGRAM 1998-2000
MINIMUM ENTRY SCORES

Deer/Gun	Recognition Program	La. State Record*	Boone and Crockett**
White-tail Typical-	150	160	170
White-tail Non-typical	175	185	195

* also qualifies for Boone and Crockett Awards Program
** all time record book

Deer/Archery	Recognition Program	La. State Record	Pope and Young Record Book
White-tail Typical-	90	110	125
White-tail Non-typical	100	140	155

Deer/Muzzleloader	Recognition Program	La. State Record	Longhunter Society
White-tail Typical	110	120	130
White-tail Non-Typical	130	150	160

Wild Turkey	Recognition Program	La. State Record
	40	40

Anyone having a trophy that may score high enough to receive recognition from the state, the Boone and Crockett Club, or the Pope and Young Club should contact their local district LDWF office or the Deer Study Section in Baton Rouge.

Copies of the 1979-91 Louisiana Record Book, Louisiana Big Game Recognition Program 1992-1994, and the Current State Listing of Big Game Records are available from the Deer Study Section.

Louisiana
Big Game Records

Category - White-tail Deer - Gun - Typical Antlers

SCORE	LOCALITY KILLED	HUNTER	DATE	B & C BOOK
184 6/8	Madison Parish	Don Broadway	1943	Yes
184 4/8	Bossier Parish	Ernest O. McCoy	1961	Yes
184 2/8	Franklin Parish	Dr. H.B. Womble	1914	Yes
181 1/8	Avoyelles Parish	Donald Riviere	1998	
180 5/8	Thistlethwaite WMA St. Landry Parish	Shawn P. Ortego	1975	Yes
180 4/8	Madison Parish	Buford Perry	1961	Yes
179 7/8	Tensas Parish	Anthony Guice	1995	Yes
179 6/8	Union Parish	Bill Cranford	1963	
177 7/8	LaSalle Parish	Jim Nick Gray	1996	
177 5/8	Concordia Parish	John W. King	1996	
177 3/8	Claiborne Parish	Steven L. Morton	1986	Yes
177 1/8	Caddo Parish	James Henderson	1998	
177 1/8	Richland Parish	Hal Senn	1973	
177	Rapides Parish	Glenn Feazell	1997	
176 2/8	Richland Parish	Willard Robertson	1968	Yes
174 5/8	Tangipahoa Parish	Robert Lee	1992	
173 7/8	Grant Parish	Dwayne Robertson	1999	
173 4/8	Fort Polk WMA Vernon Parish	Dean Mitchell	1983	
173 3/8	Grant Parish	Mike Hicks	1997	
172 3/8	Concordia Parish	Unknown	1922	
172	Avoyelles Parish	Richard Dupuy, Jr.	1998	
171 7/8	Madison Parish	M.L. Arnold	1941	Yes
171 5/8	Tensas Parish	Jim Keahey	1960	Yes
171 1/8	Bossier Parish	David C. Long	1994	

170 6/8	Livingston Parish	Huey Lanier	1985	
170 6/8	Winn Parish	Charles Erwin	1980	Yes
170 6/8	Natchitoches Parish	Randy Ward	1993	
170 5/8	Webster Parish	H.G. Gregory	1985	Yes
170 3/8	Madison Parish	V.W.F. Jefferson	1945	
170 3/8	Morehouse Parish	Stephen M. White, Sr.	1945	
170 1/8	Morehouse Parish	Johnnie Kovac, Jr	1979	Yes
170 1/8	Saline WMA	Richard Miller	1991	
170	Franklin Parish	Vernon Morris	1977	
170	W.Feliciana Parish	Jerry Loper	1960	Yes
169 4/8	Tensas Parish	W.B. McDonald	1956	
169	Morehouse Parish	Preston Church	1993	
168 5/8	Chicago Mills WMA Tensas Parish	Warner L. Patton	1963	
168 1/8	Winn Parish	Danny Hebert	1996	
167 6/8	Red River WMA Concordia Parish	Gary L. Kinsland	1978	
167 3/8	Madison Parish	Howard Waller	1971	
166 5/8	Bossier Parish	Marlton E. Grisham	1995	
166 2/8	Thistlethwaite WMA St. Landry Parish	Tim Vidrine	1992	
166 1/8	Red River Parish	Jerry Hester	2000	
165 7/8	West Feliciana Parish	Sonny Suggs	1979	
165 7/8	Three Rivers WMA Concordia Parish	D. Dean Fuselier	1998	
165 4/8	Avoyelles Parish	Ronald Bonnette	1992	
165 3/8	Union Parish	Layne Hammons	1965	
164 7/8	Concordia Parish	Ronald Briehn	1965	
164 6/8	W.Feliciana Parish	Brad Sandridge	1992	
164 2/8	Big Lake WMA Tensas/Franklin Parish	Stephen Glyn Martin	1998	
164	Bienville Parish	Marjean McCoy	1961	

164	Bienville Parish	Chuck Carr	1983
163 3/8	W.Feliciana Parish	Steven Whatley	1995
163 2/8	Pt. Coupee Parish	J.Clifton Ortis,Sr.	1950
163 2/8	E.Feliciana Parish	Stephen Stiegler	1987
163 2/8	Avoyelles Parish	Eldon Gagnard	1998
162 6/8	Sabine Parish	Jeffrey K. Free	1976
162 6/8	Catahoula NWP-KNF Grant Parish	Lenny Lachney	1977
162 6/8	Bienville Parish	Elwood Shepherd	1999
162 5/8	Bienville Parish	Kevin Davidson	1982
162 2/8	W.Feliciana Parish	Robert Fabre,Jr.	1978
162	Union Parish	Glynn Tucker	1967
162	Natichitoches Parish	Julian Van Hoof	1991
161 7/8	Red River WMA Concordia Parish	Gilbert Barr	1994
161 6/8	Bienville Parish	Lathan Brown	1977
161 5/8	Avoyelles Parish	M.J.Hartley	1980
161 4/8	Red River WMA Concordia Parish	L.D.LaBorde	1990
161 4/8	Concordia Parish	Leo Young	1940
161 2/8	DeSoto Parish	Jerry Newman	
161 2/8	W.Feliciana Parish	Joseph Joubert	1979
161 2/8	Three Rivers WMA Concordia Parish	Joseph L. Landry	1969
161	Caldwell Parish	Tommy Johnston	1982
160 7/8	Tensas Parish	Willie Dufrene	1994
160 7/8	Natchitoches Parish	Amos Bradley	1998
160 6/8	Natchitoches Parish	Marcus Ward	1997
160 5/8	Bienville Parish	Bill Mooney	1998
160 3/8	Chicago Mills GMA Madison/Tensas Parish	Joe Miller	1960

160 2/8	Bossier Parish	Ralph Taylor	1986	*
160 2/8	Natchitoches Parish	David Azemar	1997	
160 1/8	Morehouse Parish	Bill Barthel, Jr.	1979	
160 1/8	Attakapas WMA St. Mary Parish	Kevin Brightwell	1996	
160	Concordia Parish	Kerry Boone	1962	

* B&C Recognition Book

Category - White-tail Deer - Gun - Non-Typical Antlers

SCORE	LOCALITY KILLED	HUNTER	DATE	B & C BOOK
281 6/8	Big Lake WMA Tensas Parish	James McMurray	1994	Yes
252 2/8	Concordia Parish	Dr. Joseph Shields	1948	Yes
228 7/8	West Feliciana Parish	Tommy Rice	1998	Yes
227	Concordia Parish	Picked-Up	1969	Yes
226	West Feliciana Parish	Leslie Bickham	1970	
219 6/8	Caddo Parish	W.D.Ethredge	1988	Yes
218 4/8	St. Martin Parish	Drew Ware	1941	Yes
216 7/8	Concordia Parish	J.Logan Sewell (Owner)	1956	Yes
213 1/8	Grant Parish	Kevin Collier	1995	
206 7/8	Claiborne Parish	J.H. Thurmon	1970	Yes
206 6/8	Grant Parish	Richard Ellison	1969	Yes
206 4/8	Caddo Parish	Picked-Up		
204 4/8	Tensas Parish	Veldon Rodgers	1949	
203 2/8	W.Feliciana Parish	Estus Sykes	1994	Yes
201 3/8	Concordia Parish	G.O. McGuffee	1963	Yes
198 5/8	Concordia Parish	Raymond Cowan	1961	Yes
197 6/8	Tensas Parish	Steve McCarty	1948	
196 7/8	Caddo Parish	Robert Anderson	1982	Yes
195 7/8	Webster Parish	Shannon Stanley	1997	
195 3/8	Chicago Mills WMA Tensas Parish	W. Currington	1963	
192 7/8	Union Parish	W.Paul Dendy	1969	
192 6/8	E.Feliciana Parish	Picked up	1988	
192 6/8	W.Feliciana Parish	Terry.Tharp	1991	

192 3/8	Three Rivers WMA Concordia Parish	Dawn Dauzat	1980	
192	W.Feliciana Parish	Robert LaVille	1993	
190 2/8	Concordia Parish	John T. Lincecum	1986	
188 7/8	Red River Parish	Danny Ray Bounds	1961	
186 6/8	Concordia Parish	T.B.Jones	1940's	
185 7/8	Bossier Parish	Larry Cook	1995	*
185 6/8	Avoyelles Parish	O.D. Chatelain,Jr.	1960	

* B & C Recognition Book

Category - White-tail Deer - Archery - Typical Antlers

SCORE	LOCALITY KILLED	HUNTER	DATE	POPE & YOUNG
175	St. Mary Parish	Shannon Presley	1981	yes
170 3/8	East Carroll Parish	David Roselle	1998	
164	Tensas River NWR Madison/Tensas Parish	Joe Hatton	1995	
161 5/8	East Carroll Parish	F.Lane Mitchell	1993	yes
161 4/8	East Feliciana Parish	James K. Morgan	1977	yes
158 7/8	East Carroll Parish	Brian Arceneaux	1998	yes
156 7/8	Concordia Parish	Clay Cooper	1996	
155	West Feliciana Parish	Tom Sawyer	1997	
154 2/8	West Feliciana Parish	Michael Pizzalato	1990	
152 5/8	Lake Ophelia NWR Avoyelles Parish	Mark Huval	1999	
152 4/8	Tensas River NWR Madison/Tensas Parish	Kenney Dunham	1995	yes
152 4/8	E.Carroll Parish	Mike Edwards	1995	yes
151 6/8	Avoyelles Parish	Kerry Webb	1994	
149 6/8	Pointe Coupee Parish	Richard Ward, III	1999	not eligible
149 5/8	Madison Parish	Jason Elrod	1996	
149 5/8	Tensas Parish	Robert T. Buller	1997	yes
149 5/8	E. Carroll Parish	Laurent E. Barbe, Jr.	1998	yes
149 2/8	E.Carroll Parish	Robert Jarvis	1993	yes
148 1/8	Washington Parish	Hunter Lewis	1997	yes
146 1/8	Rapides Parish	Roy Snow	1996	yes
145 5/8	East Carroll Parish	Alan Schweer	1999	yes
145 4/8	Caddo Parish	John L. Smith	1993	
144 4/8	E.Carroll Parish	John Poindexter	1997	yes
144	Tensas Parish	Lynn Honeycut	1997	yes
143 4/8	Tensas River NWR Madison/Tensas Parish	Edward Forman, Jr.	1988	yes

142 7/8	E.Carroll Parish	George Bryant	1993	yes
142 5/8	Concordia Parish	John Morella	1979	
142 2/8	Concordia Parish	Bill Dondero	1997	yes
142	E.Carroll Parish	Wilbur R. Primos	1993	
141 7/8	Bayou Macon WMA East Carroll Parish	Randy Duncan	1997	yes
141 4/8	Concordia Parish	Lee Strawn	1998	
141	Tensas River NWR Tensas Parish	Louis Mathews, Jr.	1999	not eligible
140 7/8	Desoto Parish	Mark Fisher	1993	yes
140 5/8	E.Carroll Parish	Trellis Green	1992	yes
139 2/8	Tensas Parish	Robert Bradley	1990	
139 1/8	Concordia Parish	John Wood	1992	yes
138 7/8	Sherburne WMA St. Martin Parish	Michael Pizzalato	1991	
137 6/8	Wendy West	DeSoto Parish	1997	
137 5/8	Tensas River NWR Tensas Parish	Henry E. Traxler	1990	
137 5/8	E.Feliciana Parish	John Schmidt	1991	
137	E.Feliciana Parish	Guy Bergeron	1993	yes
137	Concordia Parish	Hank Kizer	1996	yes
136 7/8	E.Carroll Parish	David Marretta	1993	yes
136 5/8	E.Carroll Parish	Alan T.Howard	1991	yes
136 4/8	Tensas River NWR	Carl Childress	1988	yes
136 4/8	Madison Parish	Martin Harthcock	1990	yes
136 4/8	Natchitoches Parish	Kenny Coutee	1999	yes
136 3/8	Tensas Parish	James Vinson	1990	yes
136 2/8	Tensas Parish	Bryant Notari	1999	
136 1/8	Claiborne Parish	Joe M. Tuggle	1985	yes
136	Madison Parish	Malcolm Franks	1987	yes
135 7/8	W.Feliciana Parish	Jay McCleary,Jr.	1993	yes

135 5/8	W.Feliciana Parish	George Spivey, III	1995	
135 3/8	Ouachita Parish	Tim W. Smith	1999	
135 2/8	E.Carroll Parish	Joe Morelli	1992	yes
135 1/8	Tunica Hills WMA W.Feliciana Parish	James C. Davis	1995	yes
134 7/8	Tensas River NWR Tensas Parish	John Peoples	1991	
134 3/8	W.Feliciana Parish	David Fontenot	1993	yes
134 2/8	Jackson Parish	George Henson	1994	
133 4/8	Thistlethwaite WMA St.Landry Parish	Charles Mistric	1991	yes
133 2/8	Concordia Parish	Benny Burris	1996	yes
133	E.Feliciana Parish	Johnny Gibson	1994	yes
133	St.Helena Parish	Douglas Meinke	1995	
132 5/8	W. B. R. Parish	Jim Thibodeaux	1984	yes
132 3/8	Bill Dondero	Concordia Parish	1997	yes
132 1/8	Thistlethwaite WMA St. Landry Parish	Brent Fontenot	1989	yes
132	W.Feliciana Parish	Don Barge	1992	yes
131 7/8	Tensas River NWR Tensas Parish	David Sheppert	1994	yes
131 6/8	Kisatchie National Forest Winn Parish	Robert McAllister	1997	yes
131	LaSalle Parish	Charles Smith	1998	
130 7/8	DeSoto Parish	Foster Thigpen	1999	
130 4/8	E.Feliciana Parish	Rick Vallet	1990	yes
130 4/8	Concordia Parish	Hank Kizer	1999	
130 3/8	E.Carroll Parish	James Head	1991	
130	East Carroll Parish	Tim Carte	1995	
129 5/8	Ouachita Parish	Arvil Fowler	1995	
129 4/8	W.Feliciana Parish	J.C. Brown	1988	
129	E.Carroll Parish	Mike Jones	1990	yes

128 7/8	Tensas River NWR Tensas Parish	Chris Morris	1998	
128 6/8	Madison Parish	Steven R. Bussell	1998	yes
128 4/8	Lincoln Parish	Ken Cook	1991	
128 1/8	East Carroll Parish	Calvin Hooker	1995	yes
128 1/8	Concordia Parish	Brad Beridon	1997	
128	E.Carroll Parish	Trip Hadad	1990	yes
127 7/8	St. Landry Parish	Levi Grossie	2000	yes
127 5/8	St. Tammany Parish	Greg Jourdan	1996	yes
127 4/8	Tensas Parish	Ronnie McDaniel	1993	
127 3/8	St. Tammany Parish	Kippy C. King	1998	yes
127 2/8	E.Feliciana Parish	Clint Levert	1995	yes
127	W.Feliciana Parish	H.Wayne Stevenson	1995	
126 6/8	Pt. Coupee Parish	M.T.McBride	1993	yes
126 5/8	Caldwell Parish	Billy Thomas	1995	yes
126 4/8	Evangeline Parish	Prentiss Perkins	1992	yes
126 1/8	Boeuf WMA Caldwell Parish	Billy Jones	1991	
126	Terrebonne Parish	Travis Bergeron	1991	
126	Concordia Parish	Clay Cooper	1994	
126	Madison Parish	Eric Craighead	1999	yes
125 7/8	Tensas Parish	John McAdams III	1993	yes
125 5/8	East Carroll Parish	Sandy Comeaux	1999	
125 4/8	E.Feliciana Parish	Charles Denstorff	1993	yes
125 4/8	St.Helena Parish	Brent Stevens	1992	yes
125 3/8	Catahoula NWP, KNF Grant Parish	Peter Deshotels	1999	yes
125 2/8	St. Mary Parish	Willie Blanchard	1995	yes
125 1/8	Atchafalaya Delta WMA St. Mary Parish	Eric Alleman	1994	yes
125 1/8	E. Carroll Parish	Hunter Fordice	1998	

125	Sabine Parish	Benny T. Jackson	1998	yes
124 1/8	E. Feliciana Parish	David Smith	1998	
124	Pointe Coupee Parish	Joseph Ewing, III	1999	
123 6/8	W.Feliciana Parish	Steve Ferguson	1992	
123 3/8	Concordia Parish	John Wood	1995	
123 1/8	Bayou Cocodrie NWR Concordia Parish	Lloyd Landry, III	1995	
123	Three Rivers WMA Concordia Parish	Cory Vicknair	1997	
122 6/8	Atchafalaya Delta WMA St.Mary Parish	Eric Alleman	1993	
122 4/8	Concordia Parish	Hank Kizer	1990	
122 4/8	Rapides Parish	Chris Sandoval	1994	
122 4/8	Tunica Hills WMA W. Feliciana Parish	Mark Junot	1999	
122 2/8	Concordia Parish	Fred Hilburn	1996	
121 7/8	Tensas Parish	Jim McConathy	1987	
121 6/8	Atchafalaya Delta WMA St. Mary Parish	Grady Alleman	1993	
121 6/8	DeSoto Parish	Michael Campbell	1998	
121 5/8	Tensas River NWR Madison/Tensas Parish	Kippy King	1996	
121 2/8	Tensas Parish	Michael Gillum	1993	
121 1/8	Cameron Parish	Mike Nobile	1992	
121	Tunica Hills WMA W.Feliciana Parish	Mark Junot	1997	
120 7/8	Winn Parish	Houison Horne	1988	
120 7/8	Tensas River NWR Madison/Tensas Parish	Roger Ward	1991	
120 7/8	East Carroll Parish	Sandy Comeaux	1996	
120 6/8	E.Carroll Parish	Tim Carte	1992	
120 6/8	Tensas River NWR Madison/Tensas Parish	Mike Hebert	1999	
119 7/8	Tensas Parish	Jerry Blackmon	1994	

119 6/8	Tensas River NWR Madison/Tensas Parish	Jimmy Griffing	1989
119 6/8	Tensas Parish	Hank Kizer	1998
119 5/8	Avoyelles Parish	Jesse Luquette, Jr.	1998
119 3/8	Caldwell Parish	Danny Russell	1990
118 7/8	Pt.Coupee Parish	John Sturgis	1997
118 7/8	Tensas NWR Madison/Tensas Parish	Tim King	1997
118 6/8	Tensas Parish	David Vinson	1995
118 5/8	Tensas Parish	John Wood	1993
117 4/8	Tensas Parish	John Wood	1993
117 3/8	Claiborne Parish	Paul Cook	1998
116 7/8	Vermilion Parish	Robert St. Julien	1986
116 7/8	W.Feliciana Parish	Mark Jones	1992
116 4/8	Madison Parish	Eric Craighead	1994
116 1/8	Tensas Parish	John Wood	1994
115 5/8	Pointe Coupee Parish	John R. Dickinson, Jr.	1999
115 3/8	Lincoln Parish	John Wilson	1982
115	Loggy Bayou WMA Bossier Parish	Stan Chapman	1975
115	Iberia Parish	Snooks Sorrel	1998
114 7/8	St. Landry Parish	E.F. Cormier	1989
114 5/8	Tunica Hills WMA W. Feliciana Parish	Mack Kennedy	1998
114 1/8	W.Feliciana Parish	J.C.Brown	1992
113 6/8	W.Feliciana Parish	John Newsom II	1987
113 6/8	Atchafalaya Delta WMA St. Mary Parish	Edward Dupris	1993
113 5/8	Concordia Parish	Hank Kizer	1989
113 3/8	Madison Parish	Kenny Dyess	1994
112 4/8	Richland Parish	Bill Edmonston	1988
112 4/8	West Feliciana Parish	Keith Luminais	1997

112	Red River Parish	Gerald Jones	1995
111 6/8	Tensas Parish	Freddy Gaumnitz	1990
111 6/8	Evangeline Parish	Susan Sons	1992
110 6/8	Tensas Parish	Jimmy Wood	1988
110 6/8	Tensas River NWR Madison/Tensas Parish	Wayne Prejean	1987
110 5/8	Avoyelles Parish	Kevin Crossen	1996
110 3/8	Catahoula NWP/KNF Grant Parish	Bill Jones	1992
110 3/8	Tunica Hills WMA West Feliciana Parish	Troy Aldridge	1997

Category - White-tail Deer - Archery - Non-Typical Antlers

SCORE	LOCALITY KILLED	HUNTER	DATE	Pope & Young
203 5/8	E.Feliciana Parish	Rodney Lee	1983	
186 4/8	Red River WMA Concordia Parish	Johnny Warren	1993	
182 2/8	E.Feliciana Parish	John Schmidt	1994	
174	E. Carroll Parish	Gary Carr	1996	
157 3/8	St.Tammany Parish	Milton Johnson	1991	

Category - White-tail Deer - Muzzleloader - Typical Antlers

Score	Locality Killed	Hunter	Date	Longhunter Society
168 5/8	Lake Ophelia NWR Avoyelles Parish	Michael Willis	1997	
165 1/8	Claiborne Parish	Timmy Sims	1999	
155 1/8	East Feliciana Parish	Reggie Bergeron	1998	
151 4/8	Tensas Parish	Jeff Dobbins	1992	yes
149 1/8	Camp Beauregard WMA; Rapides Parish	Morgan Hess	1995	
148 7/8	Caldwell Parish	Reggie Watson	1989	
140 4/8	Lake Ophelia NWR Avoyelles Parish	John Tuma	1994	
138 4/8	Camp Beauregard WMA; Rapides Parish	Bob Harvey	1995	
133 6/8	E.Feliciana Parish	Bob Mixon	1990	yes
133 2/8	Pomme de Terre WMA Avoyelles Parish	Edward Taylor	1999	
132 5/8	Grant Parish	Mike Coburn	1998	
131 6/8	East Feliciana Parish	John W. Smith	1999	
131	E.Feliciana Parish	David Moreland	1992	yes
130 4/8	W.Feliciana Parish	John Schmidt	1991	
129 1/8	West Feliciana Parish	Daniel Vidrine	1998	
128 6/8	Thistlethwaite WMA St. Landry Parish	Paul Vidrine	1998	
127 6/8	W. Feliciana Parish	Clint Stephens	1997	
126 3/8	Lake Ophelia NWR Avoyelles Parish	Michael Damewood	1997	
126 3/8	East Baton Rouge Parish	Alton Cook	1998	
125 5/8	ASF WMA Rapides Parish	Darryl Esthay	1992	
124	Caddo Parish	Tommy Tullis	1996	
124	St. Tammany Parish	Tim Scanlan	1998	

120 7/8	Lake Ophelia NWR Avoyelles Parish	Randy LaCombe	1992

Category - Eastern Wild Turkey

SCORE	LOCALITY KILLED	HUNTER	DATE
52.0	Fort Polk WMA	Charles W. Caraway	1982
50.0	Rapides Parish	Jason DeWitt	1991
49.2	Vernon Parish	Wayne Baum	1987
49.0	Lasalle Parish	Bobby Gates	1992
48.85	Caddo Parish	Rick McMillan	1995
48.5	West Bay WMA Allen Parish	Paul Jackson	1978
48.5	Madison Parish	Marion Collier	1982
48.0	Rapides Parish	C. S. Tanner	1989
48.0	Sherburne WMA Pt. Coupee Parish	Lester McNeal	1995
48.0	Sherburne WMA Pt. Coupee Parish	Greg Massey	1996
47.8	Winn Parish KNF	Burt Cockerham	2000
47.5	W.Feliciana Parish	Jeff Jackson	1985
47.5	E. Carroll Parish	Tom M. Gattle	1982
47.1	Claiborne Parish	Jerry Coleman	1990
47.1	Pomme De Terre WMA Avoyelles Parish	Chris Miller	1999
47.0	Iberville Parish	John Chaney III	1989
47.0	E.Carroll Parish	Larry Savage	1982
47.0	Iberville Parish	Russell Miller	1998
46.5	W.Feliciana Parish	Dr. T.G. Edwards	1982
46.5	Red Dirt NWP Natchitoches Parish	Tracy Lucky	1986
46.0	W.Feliciana Parish	Robert Love	1989
46.0	W.Feliciana Parish	Earl C. Watts, Jr.	1980
46.0	Lincoln Parish	Ken Cook	1993
46.0	Rapides Parish	Jason Dewitt	1994

46.0	Sherburne WMA Pt.Coupee Parish	Larry Sandoz	1997
45.5	Rapides Parish	Michael Broussard	1982
45.0	E.Carroll Parish	James R. House	1982
45.0	Vernon Parish	Raymond Davis	1983
45.0	Beauregard Parish	John Robinette	1984
45.0	St. Landry Parish	Frank C. Lemings	1981
45.0	E.Feliciana Parish	J.M. Woodside, Jr	1981
45.0	W.Feliciana Parish	Jeff Jackson	1992
44.5	E. Carroll Parish	James R. House	1982
44.5	Grant Parish	Raymond J. Palermo	1981
44.3	Iberville Parish	Randy Hull Sr.	1995
44.0	Pt. Coupee Parish	Chuck Guerin	
44.0	St. Tammany Parish	Keith Hemsteter	1984
44.0	W.Feliciana Parish	Jeff Jackson	1992
44.0	Madison Parish	Jeff Jackson	1992
44.0	W.Feliciana Parish	Jeff Jackson	1996
44.0	W.Feliciana Parish	Jeff Jackson	1997
44.0	Union Parish	Matas 'Doc' Green	1997
44.0	Pt.Coupee Parish	Eldon Cornette	1997
43.5	Washington Parish	Wayne Morris	1982
43.5	W.Feliciana Parish	Jeff Jackson	1993
43.14	Avoyelles Parish	William Burns	2000
43.1	W.Feliciana Parish	J.C. Lieux	1995
43.0	E.Feliciana Parish	J.C. Brown	1984
43.0	St.Landry Parish	John E. Bacon	1985
43.0	Bodcau WMA Bossier Parish	Don Carpenter	1991
43.0	Sherburne WMA Pt. Coupee Parish	Randy Martin	1995

43.0	Sherburne WMA Pt. Coupee Parish	Pat Lafleur	1995
43.0	St.Landry Parish	Keith Artigue	1996
43.0	W.Feliciana Parish	Doug Luquette jr.	1996
43.0	Iberville Parish	John Lamury	2000
42.5	St.Landry Parish	Mark Russell	1984
42.0	E.Feliciana Parish	James A. Roy, Jr.	1979
42.0	St. Tammany Parish	David Cave	1982
42.0	Grant Parish	Raymond Davis	1983
42.0	Calcasieu Parish	John Robinette	1984
42.0	Grant Parish	Danny W. Moreau	1983
42.0	Avoyelles Parish	Jason Dewitt	1993
42.0	W.Feliciana Parish	Marcel Danos	1990
41.7	Grant Parish	Jeremy Timmer	1995
41.5	Sabine Parish	John Hart	1982
41.5	E.Feliciana Parish	Huey Sanders	1981
41.5	Natchitoches Parish	Wilbur Rister	1984
41.5	W.Feliciana Parish	Jennifer Jackson	1990
41.5	St.Tammany Parish	Randy Piwetz	1992
41.5	E.B.R. Parish	Robert Love	1995
41.2	Pt.Coupee Parish	Russell Allement	1988
41.0	Fort Polk WMA Vernon Parish	Robert M. Deason	1982
41.0	Rapides Parish	William E. Burns	1985
40.5	St.Landry Parish	Larry Sandoz	1997
40.3	Rapides Parish	Steve Schexnyder	1985
40.0	E.Feliciana Parish	Russell Dilly	1984
40.0	E.Carroll Parish	Michael R. Clement	1982
40.0	W.Feliciana Parish	J.C. Brown	1980
40.0	Rapides Parish	Frank D'Autremont	1991

40.0	Red River WMA Concordia Parish	Ted Smith	1995

Table 1

Physical Data - Male Deer- WMA & DMAP- All Habitat Types - 1999

	WMA		DMAP	
Age Class	% Kill	Physical Data	% Kill	Physical Data
six month	27%	58 lbs.	10%	67 lbs.
1 ½ year	49%	120 lbs., 3pts.	41%	120 lbs., 3 pts.
2 ½ year	14%	154 lbs., 8 pts., 11"	28%	149 lbs., 7 pts., 11"
3 ½ year+	11%	177 lbs., 8 pts., 14"	20%	165 lbs., 7 pts., 13"

Table 2
Percent Harvest - Male Cohorts - WMA & DMAP- 1991-1999

WMA				DMAP			
Year Born	6 mo.	1 ½ yr.	Total	Year Born	6 mo.	1 ½ yr.	Total
1991	32%	47%	79%	1991	15%	50%	65%
1992	33%	47%	80%	1992	12%	46%	58%
1993	27%	51%	78%	1993	13%	43%	56%
1994	25%	47%	72%	1994	10%	43%	53%
1995	28%	48%	76%	1995	10%	43%	53%
1996	27%	48%	75%	1996	10%	41%	51%
1997	28%	52%	80%	1997	11%	41%	52%
1998	21%	49%	70%	1998	10%	39%	49%
1999	27%			1999	10%		
2000				2000			

Table 3

Physical Data - Male Deer - Bottomland Hardwd. & Mixed Pine/Hardwd. - 1999

Bottomland Hardwood		Mixed Pine/Hardwood	
Age Class	**Physical Data**	**Age Class**	**Physical Data**
six month	65 lbs.	six month	68 lbs.
1 ½ year	127 lbs., 4 pts., 7"	1 ½ year	120 lbs., 3 pts., 6"
2 ½ year	162 lbs., 7 pts., 12"	2 ½ year	147 lbs., 6 pts., 11"
3 ½ year+	175 lbs., 8 pts., 14"	3 ½ year+	159 lbs., 7 pts., 12"

Table 4
1999 DMAP Physical Data for 1 ½ Year Old Male Deer
Bottomland Hardwood and Mixed Pine/Hardwood Habitat Types

Bottomland Hardwood

Category	%	Weight	# Points
Spikes	*50%*	*113 lbs.*	*1.9 points*
Forked Antlers	*50%*	*125 lbs.*	*4.5 points*

Mixed Pine/Hardwood

Category	%	Weight	# Points
Spikes	*49%*	*114 lbs.*	*1.9 points*
Forked Antlers	*51%*	*136 lbs.*	*5.3 points*

#8

Table 1

Physical Data - Male Deer- WMA & DMAP- All Habitat Types - 1999

	WMA		DMAP	
Age Class	% Kill	Physical Data	% Kill	Physical Data
six month	27%	58 lbs.	10%	67 lbs.
1 ½ year	49%	120 lbs., 3pts.	41%	120 lbs., 3 pts.
2 ½ year	14%	154 lbs., 8 pts., 11"	28%	149 lbs., 7 pts., 11"
3 ½ year+	11%	177 lbs., 8 pts., 14"	20%	165 lbs., 7 pts., 13"

25%

48%

Table 2
Percent Harvest - Male Cohorts - WMA & DMAP- 1991-1999

WMA				DMAP			
Year Born	6 mo.	1 ½ yr.	Total	Year Born	6 mo.	1 ½ yr.	Total
1991	32%	47%	79%	1991	15%	50%	65%
1992	33%	47%	80%	1992	12%	46%	58%
1993	27%	51%	78%	1993	13%	43%	56%
1994	25%	47%	72%	1994	10%	43%	53%
1995	28%	48%	76%	1995	10%	43%	53%
1996	27%	48%	75%	1996	10%	41%	51%
1997	28%	52%	80%	1997	11%	41%	52%
1998	21%	49%	70%	1998	10%	39%	49%
1999	27%			1999	10%		
2000				2000			

Table 3

Physical Data - Male Deer - Bottomland Hardwd. & Mixed Pine/Hardwd. - 1999

Bottomland Hardwood		Mixed Pine/Hardwood	
Age Class	**Physical Data**	**Age Class**	**Physical Data**
six month	65 lbs.	six month	68 lbs.
1 ½ year	127 lbs., 4 pts., 7"	1 ½ year	120 lbs., 3 pts., 6"
2 ½ year	162 lbs., 7 pts., 12"	2 ½ year	147 lbs., 6 pts., 11"
3 ½ year+	175 lbs., 8 pts., 14"	3 ½ year+	159 lbs., 7 pts., 12"

Table 4
1999 DMAP Physical Data for 1 ½ Year Old Male Deer
Bottomland Hardwood and Mixed Pine/Hardwood Habitat Types

Bottomland Hardwood

Category	%	Weight	# Points
Spikes	*50%*	*113 lbs.*	*1.9 points*
Forked Antlers	*50%*	*125 lbs.*	*4.5 points*

Mixed Pine/Hardwood

Category	%	Weight	# Points
Spikes	*49%*	*114 lbs.*	*1.9 points*
Forked Antlers	*51%*	*136 lbs.*	*5.3 points*

June 2001

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7 Commissioner	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

MONTHLY CIVIL RESTITUTION REPORT

PERIOD	NO. CASES ASSESSED	AMOUNT ASSESSED	CREDIT FOR SALE GOODS	NO. CASES PAID	AMOUNT PAID	DISCOUNTS TAKEN	PERCENT DOLLARS PAID	PERCENT CASES PAID
FISCAL YEAR 1993-94								
July, 1993	25	$21,039.00	($9,778.00)	29	$4,855.00	$2,545.00		
Aug., 1993	53	$44,922.00	($1,137.00)	41	$7,950.00	$3,603.00		
Sept., 1993	42	$137,635.00	($17,938.00)	35	$6,783.00	$3,048.00		
Oct., 1993	49	$21,471.00	($11,282.00)	40	$3,285.00	$1,519.00		
Nov., 1993	57	$31,207.00	($13,260.00)	32	$3,053.00	$2,845.00		
Dec., 1993	53	$13,777.00		27	$6,507.00	$6,713.00		
Jan., 1994	38	$18,918.00		32	$4,423.00	$2,831.00		
Feb., 1994	68	$38,131.00	($8,238.00)	46	$9,124.00	$5,993.00		
Mar., 1994	38	$22,739.00	($2,482.00)	51	$10,854.00	$6,796.00		
April, 1994	14	$44,732.00	($1,404.00)	27	$7,307.00	$4,632.00		
May, 1994	10	$4,504.00	($165.00)	7	$5,447.00	$3,808.00		
June, 1994	29	$26,167.00	($2,986.00)	12	$1,886.00	$1,214.00		
Total FY 1994	476	$425,242.00	($68,670.00)	379	$71,474.00	$45,547.00	27.5%	79.6%
FISCAL YEAR 1994-95								
July, 1994	17	$2,127.00	($335.00)	23	$2,101.00	$1,437.00		
Aug., 1994	41	$96,403.00	($3,035.00)	20	$1,010.00	$605.00		
Sept., 1994	34	$14,614.00	($14,002.00)	26	$2,596.00	$2,342.00		
Oct., 1994	94	$17,426.00	($8,677.00)	38	$2,922.00	$3,179.00		
Nov., 1994	43	$103,592.00		45	$3,992.00	$2,803.00		
Dec., 1994	68	$31,400.00		35	$4,315.00	$2,329.00		
Jan., 1995	55	$27,601.00		52	$7,493.00	$4,921.00		
Feb., 1995	70	$61,119.00		41	$6,472.00	$3,973.00		
Mar., 1995	31	$25,072.00		44	$8,315.00	$4,737.00		
Apr., 1995	13	$15,353.00		16	$3,565.00	$1,538.00		
May., 1995	23	$11,632.00		16	$4,315.00	$654.00		
June 1995	45	$31,008.00		18	$2,630.00	$1,025.00		
Total FY 1995	534	$437,347.00	($26,049.00)	374	$49,726.00	$29,543.00	18.1%	70.0%
FICAL YEAR 1995-96								
July, 1995	0	$0.00						
Aug., 1995	46	$17,425.00		27	$9,028.00	$1,729.00		
Sept., 1995	1	$125.00		21	$3,093.00	$2,049.00		
Oct., 1995	122	$206,244.00		29	$2,720.00	$1,161.00		
Nov., 1995	55	$23,124.00		62	$10,151.00	$6,383.00		
Dec., 1995	50	$18,607.26		32	$4,780.66	$2,802.76		
Jan., 1996	49	$13,814.88	($15,296.45)	36	$5,296.51	$3,472.89		
Feb., 1996	50	$14,716.97		38	$5,777.53	$3,416.91		
Mar., 1996	33	$24,936.91		36	$6,035.12	$3,421.75		
Apr., 1996	30	$11,006.66		36	$7,173.12	$2,711.54		
May., 1996	23	$7,989.34		24	$3,941.69	$2,020.29		
June 1996	50	$22,151.31		16	$2,790.02	$1,182.23		
Total FY 1996	509	$360,141.33	($15,296.45)	357	$60,786.65	$30,350.37	25.3%	70.1%
FISCAL YEAR 1996-97								
July, 1996	40	$71,894.13		32	$5,249.93	$2,947.96		
Aug., 1996	32	$5,362.64		32	$6,254.59	$3,783.69		
Sept., 1996	41	$7,210.00		29	$2,259.96	$1,326.58		
Oct., 1996	29	$11,092.53		25	$3,697.89	$2,261.98		
Nov., 1996	20	$10,009.10		22	$1,624.63	$698.02		
Dec., 1996	13	$238,466.04		22	$5,877.18	$2,121.53		
Jan., 1997	27	$11,755.22		17	$4,393.30	$2,377.09		
Feb., 1997	47	$18,520.87		42	$8,579.84	$5,552.63		
Mar., 1997	26	$13,434.02		27	$4,999.59	$2,757.67		
Apr., 1997	10	$2,908.87		15	$2,322.88	$1,298.66		
May., 1997	20	$11,682.70		15	$5,198.91	$1,399.21		
June 1997	5	$8,036.58		10	$2,335.24	$765.34		
Total FY 1997	310	$410,372.70	$0.00	288	$52,793.94	$27,290.36	19.5%	92.9%
FICAL YEAR 1997 - 98								
July, 1997	10	$2,811.71		8	$1,584.67	$823.11		
Aug., 1997	14	$8,741.30		8	$1,496.49	$779.14		
Sept., 1997	29	$19,926.37		12	$2,051.78	$1,278.04		
Oct., 1997	12	$4,716.81		23	$3,184.83	$2,063.89		
Nov., 1997	23	$54,965.34		10	$2,424.86	$1,218.28		
Dec., 1997	25	$36,881.09		15	$4,376.97	$2,775.66		
Jan., 1998	42	$30,025.81		17	$5,300.40	$3,533.66		

Feb., 1998	37	$31,164.95		29	$22,961.69	$8,501.18		
Mar., 1998	9	$13,273.45		32	$9,406.56	$4,371.53		
Apr., 1998	10	$5,628.21		10	$2,602.62	$1,279.77		
May., 1998	0	$225.00		8	$2,885.02	$950.46		
June 1998	5	$2,414.03		6	$1,041.54	$98.00		
Total FY 1998	216	$210,774.07	$0.00	178	$59,317.43	$27,672.72	41.3%	82.4%
FICAL YEAR 1998 - 99								
July, 1998	9	$1,390.43		8	$1,964.20	$716.75		
Aug., 1998	10	$2,240.70		10	$1,048.28	$372.47		
Sept., 1998	8	$2,768.96		11	$2,000.36	$1,148.23		
Oct., 1998	22	$28,704.85		14	$1,860.17	$807.48		
Nov., 1998	19	$9,137.79		11	$1,765.97	$1,092.43		
Dec., 1998	23	$11,959.10		27	$4,441.02	$2,040.71		
Jan., 1999	41	$21,179.55		18	$6,621.63	$3,838.22		
Feb., 1999	45	$26,236.24		41	$12,119.09	$6,923.61		
Mar., 1999	15	$7,549.57		33	$8,281.77	$4,138.44		
Apr., 1999	9	$8,013.54		14	$3,035.82	$1,388.41		
May., 1999	5	$5,161.23		5	$905.50	$405.00		
June 1999	7	$3,719.01		13	$3,011.06	$533.83		
Total FY 1999	213	$128,060.97	$0.00	205	$47,054.87	$23,405.58	55.0%	96.2%
FISCAL YEAR 1999-2000								
July, 1999	5	$1,556.38		9	$2,287.53	$1,198.81		
Aug., 1999	10	$2,510.83		15	$2,455.38	$513.73		
Sept., 1999	6	$2,032.19	$5,324.80	28	$3,563.06	$475.93		
Oct., 1999	11	$4,452.31	$567.75	25	$2,775.48	$557.41		
Nov., 1999	14	$8,634.64		26	$3,250.96	$1,322.96		
Dec., 1999	24	$15,891.96		19	$3,862.76	$2,126.27		
Jan., 2000	49	$27,872.14		28	$7,952.94	$3,814.02		
Feb., 2000	21	$11,039.59		30	$10,159.24	$6,216.42		
Mar., 2000	19	$9,873.21		31	$6,709.07	$3,555.40		
Apr., 2000	12	$7,897.70		17	$2,932.41	$1,512.54		
May, 2000	7	$5,039.46	$293.60	20	$7,062.23	$3,164.00		
June, 2000	16	$14,566.88		18	$5,766.59	$1,852.12		
Total FY 2000	194	$111,367.29	$6,186.15	266	$58,777.65	$26,309.61	76%	137%
FISCAL YEAR 2000-01								
July, 2000	2	$865.01		14	$1,948.03	$154.01		
Aug.,2000	20	$15,837.60		17	$3,302.27	$1,063.92		
Sept.,2000	12	$3,562.26		23	$8,718.21	$1,351.41		
Oct.,2000	18	$122,696.24		29	$7,457.98	$490.16		
Nov.2000	13	$15,851.30		22	$4,038.50	$309.30		
Dec., 2000	40	$30,234.92		24	$7,189.98	$462.13		
Jan., 2001	28	$15,923.38		25	$7,611.66	$833.60		
Feb., 2001								
Mar., 2001								
Apr.,2001								
May 2001								
June 2001								
Total FY 2001	133	$204,970.71	$0.00	154	$40,266.63	$4,664.53	22%	116%

ENF_521U LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES PAGE: 1
CIVIL RESTITUTION ACTIVITY REPORT DATE: 01/31/2001
CURRENT MONTH
01/01/2001 TO 01/31/2001

	# CASES	AMOUNT
ORIG RESTITUTION VALUES ENTERED	28	$15,923.38
HEARING COSTS ASSESSED	0	$0.00
SALE OF CONFISCATED COMMODS	0	$0.00
SALES EXCEEDING RESTITUTION	0	$0.00
RESTITUTION ASSESSED	28	$15,923.38
PAYMENTS	18	$7,156.23-
PAYMENTS AFTER PAST DUE NOTICE	1	$120.00-
PAYMENTS AFTER REVOKED NOTICE	5	$185.43-
PAYMENTS FROM COLLECTION EFFORT	1	$150.00-
PAYMENTS FROM HRG COST ASSESSED	0	$0.00
DISCOUNTS FOR TIMELY PAYMENTS	16	$833.60-
OVERPAYMENTS	3	$0.12
REFUND OF OVERPAYMENT	0	$0.00
APPLIED CONFISCATED COMMODS	0	$0.00
APPLIED EXCEEDING BALANCE DUE	0	$0.00
REFUND OF CONFISCATED COMMOD.	0	$0.00
RETURNED CHECKS	0	$0.00
MISC. ADJUSTMENTS		
DEBITS	0	$0.00
CREDITS	0	$0.00
REASSESSMENTS		
DEBITS	0	$0.00
CREDITS	2	$93.60-
WRITE-OFFS	1	$0.09-
ASSESSMENTS WITHDRAWN	0	$0.00
ADJUDICATION ADJUSTMENTS	0	$0.00
FOUND NOT RESPONSIBLE	1	$524.54-
DISMISSED BY D.A.	0	$0.00
CASES VOIDED BY ENFORCEMENT	0	$0.00

FOOTNOTE:

FORFEIT OF CONFISCATED COMMODS	0	$0.00

	# CASES	AMOUNT
ORIG RESTITUTION VALUES ENTERED	133	$204,545.71
HEARING COSTS ASSESSED	15	$425.00
SALE OF CONFISCATED COMMODS	0	$0.00
SALES EXCEEDING RESTITUTION	0	$0.00
RESTITUTION ASSESSED	133	$204,970.71
PAYMENTS	74	$29,454.96-
PAYMENTS AFTER PAST DUE NOTICE	5	$360.43-
PAYMENTS AFTER REVOKED NOTICE	21	$4,554.23-
PAYMENTS FROM COLLECTION EFFORT	15	$5,272.01-
PAYMENTS FROM HRG COST ASSESSED	24	$625.00-
DISCOUNTS FOR TIMELY PAYMENTS	55	$4,664.53-
OVERPAYMENTS	9	$145.35
REFUND OF OVERPAYMENT	1	$143.65
APPLIED CONFISCATED COMMODS	0	$0.00
APPLIED EXCEEDING BALANCE DUE	0	$0.00
REFUND OF CONFISCATED COMMOD.	0	$0.00
RETURNED CHECKS	1	$25.00
MISC. ADJUSTMENTS		
DEBITS	1	$20.00
CREDITS	0	$0.00
REASSESSMENTS		
DEBITS	0	$0.00
CREDITS	2	$93.60-
WRITE-OFFS	7	$1,016.04-
ASSESSMENTS WITHDRAWN	0	$0.00
ADJUDICATION ADJUSTMENTS	1	$524.54-
FOUND NOT RESPONSIBLE	10	$27,724.42-
DISMISSED BY D.A.	0	$0.00
CASES VOIDED BY ENFORCEMENT	0	$0.00

FOOTNOTE:

FORFEIT OF CONFISCATED COMMODS	7	$47,485.55

	# CASES	AMOUNT
ORIG RESTITUTION VALUES ENTERED	4,126	$2,907,744.03
HEARING COSTS ASSESSED	217	$5,775.00
SALE OF CONFISCATED COMMODS	331	$269,865.45-
SALES EXCEEDING RESTITUTION	148	$71,951.21
RESTITUTION ASSESSED	4,126	$2,715,604.79
PAYMENTS	2,747	$520,575.27-
PAYMENTS AFTER PAST DUE NOTICE	16	$1,636.70-
PAYMENTS AFTER REVOKED NOTICE	54	$12,715.31-
PAYMENTS FROM COLLECTION EFFORT	21	$6,972.04-
PAYMENTS FROM HRG COST ASSESSED	105	$2,725.00-
DISCOUNTS FOR TIMELY PAYMENTS	1,947	$248,494.30-
OVERPAYMENTS	133	$3,147.91
REFUND OF OVERPAYMENT	50	$10,767.89
APPLIED CONFISCATED COMMODS	13	$29,905.30-
APPLIED EXCEEDING BALANCE DUE	5	$12,222.64
REFUND OF CONFISCATED COMMOD.	20	$90,603.09
RETURNED CHECKS	2	$61.75
MISC. ADJUSTMENTS		
DEBITS	3	$55.00
CREDITS	13	$10.22-
REASSESSMENTS		
DEBITS	21	$6,881.15
CREDITS	60	$36,485.07-
WRITE-OFFS	972	$1,026,098.20-
ASSESSMENTS WITHDRAWN	6	$1,399.24-
ADJUDICATION ADJUSTMENTS	23	$12,388.80-
FOUND NOT RESPONSIBLE	50	$105,033.21-
DISMISSED BY D.A.	0	$0.00
CASES VOIDED BY ENFORCEMENT	0	$0.00
** TOTAL OUTSTANDING	371	$834,905.56

FOOTNOTE:

FORFEIT OF CONFISCATED COMMODS	33	$86,027.30 *

AGING OF SALE OF CONFISCATED COMMODITIES

VIOLATION DATE UNKNOWN	0	$0.00
1 - 30 DAYS	0	$0.00
31 - 60 DAYS	2	$270.80
61 - 90 DAYS	6	$3,427.58
91 - 120 DAYS	15	$9,961.32
121 - 150 DAYS	12	$7,308.65
151 - 180 DAYS	22	$23,685.49
181 - 365 DAYS	99	$94,463.53
OVER ONE YEAR	136	$75,180.27
OVER TWO YEARS	148	$114,203.69
OVER THREE YEARS	543	$375,776.06
** TOTAL AGING	983	$704,277.39

AGING OF OUTSTANDING CASES

COLLECTIONS WITH AGENCY:		
CAN NOT BE INVOICED	0	$0.00
CURRENT	24	$14,107.00
1 - 30 DAYS	27	$22,947.54
31 - 90 DAYS	14	$128,795.19
91 - 180 DAYS	12	$5,552.69
181 - 365 DAYS	39	$28,848.41
OVER ONE YEAR	188	$195,056.61
COLLECTIONS WITH PRIVATE COLLECTIONS FIRM:		
1 - 90 DAYS	0	$0.00
91 - 180 DAYS	0	$0.00
181 - 365 DAYS	0	$0.00
OVER ONE YEAR	65	$438,499.04
AMOUNT UNDER PROTEST:		
1 - 180 DAYS	0	$0.00
181 - 365 DAYS	2	$1,098.00
OVER ONE YEAR	0	$0.00
** TOTAL AGING	371	$834,904.48

CURRENT MONTH
01/01/2001-01/31/2001

	# CASES	AMOUNT
FINES	282	$14,300.00
HEARING COSTS		
DEBITS	257	$6,425.00
CREDITS	0	$0.00
TOTAL DUE		$20,725.00
PAID IN FULL	185	$10,350.00-
PARTIAL PAYMENTS	5	$250.00-
OVERPAYMENTS	0	$0.00
REFUNDS	0	$0.00
RETURNED CHECKS	1	$50.00
MISC CHANGES		
DEBITS	1	$20.00
CREDITS	0	$0.00
ADJUSTMENTS TO VIOLATION		
DEBITS	0	$0.00
CREDITS	1	$50.00-
VOIDS	3	$150.00-
NOT GUILTY	18	$900.00-

	# CASES	AMOUNT
FINES	3,684	$186,800.00
HEARING COSTS		
DEBITS	1,367	$34,175.00
CREDITS	1	$75.00-
TOTAL DUE		$220,900.00
PAID IN FULL	2,515	$134,405.00-
PARTIAL PAYMENTS	40	$2,000.00-
OVERPAYMENTS	14	$480.75
REFUNDS	10	$305.00
RETURNED CHECKS	4	$250.00
MISC CHANGES		
DEBITS	4	$60.00
CREDITS	1	$0.75-
ADJUSTMENTS TO VIOLATION		
DEBITS	21	$1,050.00
CREDITS	1	$50.00-
VOIDS	260	$10,950.00-
NOT GUILTY	106	$4,400.00-

	# CASES	AMOUNT
FINES	86,136	$4,377,707.07
HEARING COSTS		
DEBITS	19,944	$498,927.80
CREDITS	1	$5,450.00-
TOTAL DUE		$4,871,184.87
PAID IN FULL	48,671	$2,534,351.60-
PARTIAL PAYMENTS	1,288	$58,854.37-
OVERPAYMENTS	958	$26,238.42
REFUNDS	181	$8,680.31
RETURNED CHECKS	65	$3,525.00
MISC CHANGES		
DEBITS	65	$1,085.00
CREDITS	169	$156.78-
ADJUSTMENTS TO VIOLATION		
DEBITS	147	$8,450.00
CREDITS	15	$850.00-
VOIDS	4,805	$205,757.73-
NOT GUILTY	896	$44,775.00-
TOTAL OUTSTANDING		$2,074,418.12

AGING OF OUTSTANDING CASES FROM CITATION DATE

CURRENT	120	$6,150.00
1 - 30 DAYS	154	$7,800.00
31 - 90 DAYS	467	$24,220.00
91 - 180 DAYS	666	$38,385.00
181 - 365 DAYS	1,959	$120,915.00
OVER 1 YEAR UNCOLLECTABLE	0	$0.00
OVER 1 YEAR PENDING	0	$0.00
OVER 1 YEAR (OTHER)	29,248	$1,876,948.12
		==========
** TOTAL AGING	32,614	$2,074,418.12

AGING OF OUTSTANDING CASES FROM HEARING DATE

PREHEARING	818	$41,845.00
0 - 90 DAYS	2,407	$128,830.00
91 - 180 DAYS	697	$35,160.00
181 - 270 DAYS	992	$67,135.00
271 - 365 DAYS	533	$36,780.00
OVER 1 YEAR UNCOLLECTABLE	0	$0.00
OVER 1 YEAR PENDING	0	$0.00
OVER 1 YEAR (OTHER)	27,167	$1,764,668.12
		==========
** TOTAL AGING	32,614	$2,074,418.12

Louisiana Department of Wildlife and Fisheries

NEWS RELEASE

James H. Jenkins Jr.
Secretary

CONTACT
225/765-2923

2001-29a

1/29/01

WILDLIFE & FISHERIES COMMISSION TO MEET FEB. 1

The Louisiana Wildlife and Fisheries Commission will hold its next regular meeting on Thursday, Feb. 1, 2001, at 10 a.m. The meeting is open to the public and will take place in the Louisiana Room of the Louisiana Department of Wildlife and Fisheries building, located at 2000 Quail Dr. in Baton Rouge. The agenda follows:

1. Roll Call
2. Approval of Minutes of Jan. 4, 2001
3. Presentation of Shikar Safari Club International Officer of the Year Award
4. Enforcement & Aviation Reports/January
5. Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin (St. Martin Parish)
6. Consideration of Offshore Shrimp Closure
7. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead
8. Division Report - Deer Program/Quality Deer Management
9. Set June 2001 Meeting Date
10. Public Comments
11. Adjournment

-30-

EDITORS: For more information, contact Marianne Burke 225/765-2917 (burke_mm@wlf.state.la.us).

January 25, 2001

NEWS RELEASE

APPROVED: _____

AMENDED AGENDA FOR COMMISSION MEETING

The next regular public board meeting has been scheduled by the Commission for **10:00 A.M. on Thursday, February 1, 2001**, at the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

1. Roll Call

2. Approval of Minutes of January 4, 2001

3. Presentation of Shikar Safari Club International Officer of the Year Award

4. Enforcement & Aviation Reports/January

5. Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin (St. Martin Parish)

6. Consideration of Offshore Shrimp Closure

7. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead

8. Division Report - Deer Program/Quality Deer Management

9. Set June 2001 Meeting Date

10. Public Comments

11. Adjournment

Hawkins, Susan

From: LaCaze, B "Keith"
Sent: Wednesday, January 24, 2001 11:23 AM
To: Hawkins, Susan
Subject: Commission Agenda

Susan, during the enforcement case report and aviation report of the commission meeting agenda I need to add presentation of Shikar-Safari Club International Officer of the Year Award to Senior Agent Ross Mire. Award presented by Col. Vidrine. Thank you.

approved by Dr Stone
to add to agenda
1/26/2001 - 9:20 AM

Louisiana Department of Wildlife and Fisheries

NEWS RELEASE

James H. Jenkins Jr.
Secretary

CONTACT
225/765-2923

2001-29

1/24/01

WILDLIFE & FISHERIES COMMISSION TO MEET FEB. 1

The Louisiana Wildlife and Fisheries Commission will hold its next regular meeting on Thursday, Feb. 1, 2001, at 10 a.m. The meeting is open to the public and will take place in the Louisiana Room of the Louisiana Department of Wildlife and Fisheries building, located at 2000 Quail Dr. in Baton Rouge. The agenda follows:

1. Roll Call
2. Approval of Minutes of Jan. 4, 2001
3. Enforcement & Aviation Reports/January
4. Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin
5. Consideration of Offshore Shrimp Closure
6. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead
7. Division Report - Deer Program/Quality Deer Management
8. Set June 2001 Meeting Date
9. Public Comments
10. Adjournment

-30-

EDITORS: For more information, contact Marianne Burke 225/765-2917 (burke_mm@wlf.state.la.us).

January 23, 2001

NEWS RELEASE

APPROVED: _____

AGENDA FOR COMMISSION MEETING

The next regular public board meeting has been scheduled by the Commission for **10:00 A.M. on Thursday, February 1, 2001**, at the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

1. Roll Call

2. Approval of Minutes of January 4, 2001

3. Enforcement & Aviation Reports/January

4. Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin (Lafayette Parish)

5. Consideration of Offshore Shrimp Closure

6. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead

7. Division Report - Deer Program/Quality Deer Management

8. Set June 2001 Meeting Date

9. Public Comments

10. Adjournment

State of Louisiana

James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

January 23, 2001

MEMORANDUM

TO: Chairman and Members of Commission

FROM: James H. Jenkins, Jr., Secretary

SUBJECT: February Commission Meeting Agenda

The next regular Commission meeting will be held at **10:00 A.M. on Thursday, February 1, 2001**, in the Louisiana Room at the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

The following items will be discussed:

1. Roll Call

2. Approval of Minutes of January 4, 2001

WINTON VIDRINE

3. Enforcement & Aviation Reports/January

OFFICE OF WILDLIFE

4. Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin (Lafayette Parish)

OFFICE OF FISHERIES

5. Consideration of Offshore Shrimp Closure

6. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead

DIVISION REPORTS

7. Deer Program/Quality Deer Management

8. Set June 2001 Meeting Date

9. Public Comments

JHJ:sch

cc: Jim Patton
Phil Bowman
John Roussel
Craig Lamendola
Don Puckett
Dennis Kropog
Tracy Mitchell
Division Chiefs

COVER SHEET

FAX

To: Dr. Jerry Stone

Fax #: 216-3175

Subject: Commission Agenda

Date: January 22, 2001

Pages: 3, including this cover sheet.

COMMENTS:

Please review the attached agenda and then give me a call. Thank you.

From the desk of...

Susan Hawkins

La. Dept. Of Wildlife & Fisheries
P. O. Box 98000
Baton Rouge, LA 70898-9000

225-765-2806
Fax: 225-765-0948

, 2001

MEMORANDUM

TO: Chairman and Members of Commission

FROM: James H. Jenkins, Jr., Secretary

SUBJECT: February Commission Meeting Agenda

The next regular Commission meeting will be held at **10:00 A.M. on Thursday, February 1, 2001**, in the Louisiana Room at the Wildlife and Fisheries Building, 2000 Quail Drive, Baton Rouge, LA.

The following items will be discussed:

1. Roll Call

2. Approval of Minutes of January 4, 2001

WINTON VIDRINE

3. Enforcement & Aviation Reports/January

OFFICE OF WILDLIFE

4. Declaration of Emergency & Notice of Intent - Closure of Bird Rookery on Lake Martin (Lafayette Parish)

OFFICE OF FISHERIES

5. Consideration of Offshore Shrimp Closure

6. Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead

DIVISION REPORTS

7. Deer Program/Quality Deer Management

8. Set June 2001 Meeting Date

9. Public Comments

JHJ:sch

cc: Jim Patton
Phil Bowman
John Roussel
Craig Lamendola
Don Puckett
Dennis Kropog
Tracy Mitchell
Division Chiefs

Hawkins, Susan

From: Roussel, John E
Sent: Thursday, January 11, 2001 4:11 PM
To: Foote, Karen
Cc: Hawkins, Susan; Greeson, Cathy; Abbott, Janet
Subject: RE: February 2001 Commission meeting

Approved

-----Original Message-----
From: Foote, Karen
Sent: Thursday, January 11, 2001 3:16 PM
To: Roussel, John E
Cc: Hawkins, Susan; Greeson, Cathy; Abbott, Janet
Subject: February 2001 Commission meeting

Marine Fisheries proposed agenda items:

Consideration of Offshore Shrimp Closure- Martin Bourgeois

Presentation of Stock Assessments for Striped Mullet, Southern Flounder, Black Drum and Sheepshead- Joe Shepard

Marty's presentation would include an overview of 2000 shrimp production.

If you approve, please let Susan and me know. Thanks.

Hawkins, Susan

From: Lester, Gary
Sent: Thursday, January 11, 2001 2:30 PM
To: Hawkins, Susan
Cc: Savoie, Brandt; Watson, "Blue"

Susan,

Please add to the Febuary 1, 2001 Wildlife and Fisheries Commission meeting agenda the following topic. I'll be the presenter.

Emergency Rule and Notice of Intent for closure of bird rookery on Lake Martin (~~Lafayette~~ St. Martin Parish) to all boat traffic.

Thanks.

Gary Lester
Louisiana Natural Heritage Program
P.O. Box 98000
Baton Rouge, LA 70898-9000
225/765-2821

State of Louisiana

James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

January 3, 2001

MEMORANDUM

TO: Undersecretary, Assistant Secretary-Office of Wildlife, Assistant Secretary-Office of Fisheries and Confidential Assistant

FROM: James H. Jenkins, Jr., Secretary

SUBJECT: Commission Meeting Agenda - **February 1, 2001**

Please write on the bottom of this memo and return to Susan Hawkins by Thursday, January 18th any agenda items your office may have for the **Thursday, February 1st** Commission Meeting to be held in Baton Rouge, Louisiana, at the Wildlife and Fisheries Building, 2000 Quail Drive. This meeting will begin at 10:00 a.m. on February 1st. If you do not have anything for the agenda, please return memo and indicate so on the bottom of this memo. We cannot add anything to the agenda that requires commission action after we have published the agenda in the state journal.

Resolutions and Notices of Intent should be included with the list of items to be placed on the agenda. Thank you for your cooperation!

JHJ/sch
cc: Commissioners
Don Puckett
Winton Vidrine
Tommy Prickett
Bennie Fontenot
Karen Foote
Wynnette Kees
Brandt Savoie
Tracy Mitchell

Case Report

State of Louisiana

James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

January 3, 2001

MEMORANDUM

TO: Undersecretary, Assistant Secretary-Office of Wildlife, Assistant Secretary-Office of Fisheries and Confidential Assistant

FROM: James H. Jenkins, Jr. Secretary

SUBJECT: Commission Meeting Agenda - **February 1, 2001**

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JHJ/sch
cc: Commissioners
Don Puckett
Winton Vidrine
Tommy Prickett
Bennie Fontenot
Karen Foote
Wynnette Kees
Brandt Savoie
Tracy Mitchell

Dive Report - Deer Proposal / Quality Deer Management.

State of Louisiana

James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

January 3, 2001

MEMORANDUM

TO: Undersecretary, Assistant Secretary-Office of Wildlife, Assistant Secretary-Office of Fisheries and Confidential Assistant

FROM: James H. Jenkins, Jr., Secretary

SUBJECT: Commission Meeting Agenda - **February 1, 2001**

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cc: Commissioners
Don Puckett
Winton Vidrine
Tommy Prickett
Bennie Fontenot
Karen Foote
Wynnette Kees
Brandt Savoie
Tracy Mitchell

1/17/01
Dear Susan:
The Inland Fish Division has no item(s) to be placed on the Feb. Agenda. Thanks
Brad

Jan-03-01 12:21P

State of Louisiana

Post-it® Fax Note 7671 | Date 1/2/01 | # of pages ▶ 1
To Susan Hawkins | From Ewell Smith
Co./Dept. | Co.
Phone # | Phone # 800-272-4017
Fax # 225-765-0948 | Fax #

James H. Jenkins, Jr.
Secretary

Department of Wildlife
Post Office Box 9
Baton Rouge, LA 708
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

January 3, 2001

MEMORANDUM

TO: Undersecretary, Assistant Secretary-Office of Wildlife, Assistant Secretary-Office of Fisheries and Confidential Assistant

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cc: Commissioners
Don Puckett
Wimon Vidrine
Tommy Hickett
Bennie Fontenot
Karen Foote
Wynnette Kees
Brandt Savoie
~~Tracy Archer~~

Nothing to add to agenda.
Ewell Smith
(Executive Director)
Seafood Board.

State of Louisiana

James H. Jenkins, Jr.
Secretary

Department of Wildlife & Fisheries
Post Office Box 98000
Baton Rouge, LA 70898-9000
(225) 765-2800

M.J. "Mike" Foster, Jr.
Governor

January 3, 2001

MEMORANDUM

TO: Undersecretary, Assistant Secretary-Office of Wildlife, Assistant Secretary-Office of Fisheries and Confidential Assistant

FROM: James H. Jenkins, Jr., Secretary

SUBJECT: Commission Meeting Agenda - **February 1, 2001**

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